

# COMPUTERWORLD

## Denied!

Decree rejected; Microsoft, DOJ unite

By Stuart J. Johnston and Mitch Betts

Microsoft may be down, but it's not out.

Prodded by California attorney Gary Reback and his three anonymous software company clients, U.S. District Court Judge Stanley Sporkin last week rejected out of hand the proposed consent decree between Microsoft Corp. and the U.S. Department of Justice.

But before the week was out, a feisty Microsoft had teamed up with its former nemesis — the Justice Department — to appeal Sporkin's ruling (see chart below) and request a speedy appeals process.

If an appeal is granted, oral arguments could be presented to the court before June, although a ruling is likely to be months away, Microsoft counsel William Neukom said.

The request for the appeal will put on hold a March 16 court date scheduled by Sporkin because the appeals process normally preempts any lower-court proceedings, Neukom said. Sporkin's hearing would likely deal with procedural issues surrounding the case.

### Users, Wall Street indifferent

Meanwhile, Reback's stunning upset of what is ordinarily a rubber-stamp process appears to be having little impact on users and investors (see stocks, page 151).

If not resolved soon, the case will likely take years to wend its way through the courts. With that in mind, several users said it will not upset their plans.

"Why would it [affect users]?" asked Arthur Tisi, chief  
**Denied, page 14**

### Judge Sporkin's ruling

The settlement was rejected primarily for the following four reasons:



#### 1 Justice Department "stonewalling"

"The government, time after time, has refused to provide the court with information concerning the substance of ... what it investigated and the findings it made."

#### 2 Narrow scope

"Neither party has addressed the court's concern that the decree be expanded to cover all of Microsoft's commercially marketed operating systems."

#### 3 Ineffective remedy

"Simply telling a defendant to go forth and sin no more does little or nothing to address the unfair advantage it has already gained."

#### 4 Weak compliance mechanism

"Microsoft's position is that its 50 or so in-house lawyers, along with its outside retained counsel, are sufficient to monitor the decree. This is the same group that has advised its client that 'product preannouncements' to impede competition is proper behavior."

### Object-oriented frameworks

## Oracle floats plan

By Kim S. Nash

REDWOOD SHORES, CALIF.

After years of talking a good object game, Oracle Corp. is still talking. But last week, at least, the database firm revealed specific plans to enter the object-oriented playing field, with a framework designed to let users model and build true object applications.

Code-named Sedona, the framework will not show up until the second half of next year, Oracle officials confirmed.

The development environment will include a complex repository, relational-object mapping facilities, programming tools and project management utilities, among

### Oracle's Sedona

● **VISUAL PROGRAMMING TOOLS** to model and build reusable data and business logic objects

● **SERVER-BASED REPOSITORY** to store, track and pass messages to objects and to unite Oracle's CDE, Power Objects and other tools

● **OBJECT MEDIATOR** to link Oracle's object tools and framework to those from other vendors, such as Sun's Project DOE

other products (see chart). The components are intended to communicate via published application programming interfaces and object specifications from Oracle,

Sun Microsystems, Inc. and other vendors, said Sohaib Abbasi, senior vice president of Oracle's tools division.

Sedona will work with existing Oracle 7 databases as well as with the forthcoming Oracle 8, Abbasi said. Oracle 8 is expected to include an object translation layer riding atop a relational engine.

### Is this for real?

Most users and analysts interviewed last week took a skeptical show-me stance, noting that Oracle 8 and related object plans have been a favorite topic — but hardly real products — of Oracle Chief Executive Officer Larry Ellison for

**Oracle, page 153**

## Users build client/server benchmarks

By Rosemary Cafasso

At the height of the mainframe era, benchmarks and other performance yardsticks made it easy to distinguish the high-performing systems from the clunkers.

Not so in client/server. Currently, there are no industry guidelines to give users even a reference point to help separate the winners from the losers.

Instead, it is up to users to figure out how to comparison shop for client/server applications.

"There's no metric to use because there are so many components," said Terry Thornton, director of financial systems at Vanstar Corp. in Pleasanton, Calif., which installed Platinum Software Corp.'s client/server financial software. "The only true way is to put the software up and

run it and test it on actual transactions."

Several client/server software companies have recently taken to releasing their own benchmarks on a variety of items, including num-

**Users, page 153**

## IBM drops RAID boost; costs, complexity may rise

By Craig Stedman

IBM has changed the rules on users of its Ramac mainframe disk array in the middle of the game. As a result, upgrading to higher-capacity disk drives due to ship by midyear will be more complicated — and perhaps costlier — than Ramac customers had been led to expect.

IBM confirmed last week that it has scrapped plans to increase the amount of Ramac RAID capacity that can be attached to its 3990 Model 6 controller beyond the current 180G-byte maximum. Budgetary limitations and performance issues played a role in the decision, the company said.

IBM previously told Ramac buyers that 3990 Model 6 support would be doubled when the new 4G-byte StarFire disks hit the market. These disks would allow companies to increase capacity simply by adding drives. But now, customers with a full Ramac configuration will have to add another controller, and that forces a number of trade-offs

(see chart page 16).

"This kind of leaves IBM with some egg on its face," said Wayne Pattison, director of data center operations at Kansas City Southern Railway Co. in Kansas City, Mo. "It's unlike IBM. They don't usually tell you they're going to do something and then go back on it."

The change of plan, Pattison added, "is one more reason why I don't think I made a mistake" by spurning Ramac and choosing a competing RAID platform for an upcoming storage purchase. He declined to identify the product he expects to buy for contractual rea-

**IBM, page 16**

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Chairman and CEO  
IBM  
Armonk, N.Y.

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**See In Depth, page 124**

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## LIFE in the FOREIGN LANE



NICK KILSH

Elf Autochem's Bob Rubin values face-to-face contact

The challenges for U.S.-based IS executives working for foreign multinationals go well beyond linguistic and cultural issues. These executives must take a backseat role in top technology decisions and a leadership role in adopting new technologies — and deal with licensing and procurement issues. **See Management, page 117.**

### NEWS

- The FBI has tracked down a man it claims is a notorious **hacker**. *Page 4*
- IBM targets Sun's Solstice **enterprise management platform** with a trio of distributed networking announcements. *Page 4*
- A new AT&T unit will offer network business consulting, integration and outsourcing. *Page 6*
- IBM reaffirms its plan to put a Unix interface on top of OS/2. *Page 10*
- Borland launches its Delphi application development environment. *Page 15*
- Intel claims its next-generation P6 processor will offer a significant improvement over Pentium-based systems. *Page 16*
- Wall Street is the target for a **wireless mobile computing package**. *Page 24*

### DESKTOP COMPUTING

- A test-drive review shows that Hewlett-Packard's latest **color notebook**, OmniBook 4000, is comparable to IBM's ThinkPad but with a lower price. *Page 39*

### WORKGROUP COMPUTING

- Hewlett-Packard looks for new workstation users in an old HP market. *Page 85*

### ENTERPRISE NETWORKING

- Microsoft says the next release of its **Systems Management Server** will be closely tied to Windows 95. *Page 91*

### LARGE SYSTEMS

- Hitachi Data Systems is emulating IBM's

tape libraries. *Page 101*

### APPLICATION DEVELOPMENT

- A vendor consortium is out to prove that applications can be built out of modular, **reusable software components**. *Page 113*

### CAREERS

- Companies are still **testing applicants** for mainframe proficiency as well as newer technologies. *Page 129*

### MARKETPLACE

- Don't let **currency exchange rates** get you down when buying equipment. *Page 144*

### COMMENTARY

- Charles Babcock notes that Tandem has turned itself around by taking advantage of commodity chips and finding new market outlets. *Page 8*
- Real people are still worried about big iron, says Paul Gillin. *Page 36*
- Data gurus, hold on. Your time is at hand, say Gary Heil and Tom Parker. *Page 37*
- Data everywhere but not a drop to drink, laments Max D. Hopper. *Page 37*

### COMING NEXT WEEK

As organizations move away from a traditional hierarchical structure, IS managers must rethink the politics of management. The premier issue of *Computerworld's* new monthly Leadership Series features Paul A. Strassmann on "Governance: The new IS agenda."

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### Executive Briefing

**After years of talking a good object game, Oracle** plans to enter the object-oriented realm with a multi-piece framework, code-named **Sedona**, designed to let Oracle users model and build true object applications, Oracle officials said. Due later this year, the development environment reportedly will include a repository, relational-object mapping facilities, programming tools and project management utilities, among other products. *Page 1*

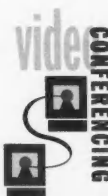
**With no independent industry guidelines** available for client/server benchmarking, users need to find their own way. The benchmarks and other performance yardsticks that made life easier in the mainframe era don't work in the **client/server** world, leaving managers with no reference point to help separate the workhorse systems from the clunkers. They have to make their own solutions to the benchmark dilemma when comparison shopping for client/server applications. *Page 1*

**A study of World-Wide Web usage** shows that the vast majority of people cruising the Web are looking for information, not spending opportunities. Only 18% of overall respondents spent more than \$50 in on-line purchases in the previous six months. *Page 6*

**While there are no signs of users getting off the data warehousing** bandwagon, many are still unclear on the best approach. However, some users are considering rollouts of on-line **analytical processing** into data warehousing strategies. *Page 12*

**Desktop videoconferencing** is most easily cost-justified by companies that are migrating from room-based systems. Others are drawn to the lure of cost savings and increased productivity and efficiency, but most of the activity is in pilots. Widespread deployment is two to three years away. *Page 81*

**To provide its customers with one-stop shopping, Chase Manhattan Bank** has installed a middleware package designed to ease the exchange of data among business units. *Page 101*



## The 5th Wave by Rich Tennant



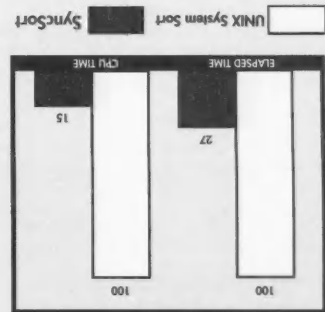
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need to make your commercial  
performance and functionality you  
SyncSort provides the per-  
text – slowly!  
All it can do is sort ASCII  
its System Sort isn't one of them.  
UNIX has its advantages, but

RECORD FORMATS		
UNIX	System Sort	SyncSort
YES	NO	YES
Fixed length binary		
YES	NO	YES
Variable length binary		
YES	YES	YES
ASCII Text		
RECORD PROCESSING		
NO	NO	YES
Selection		
YES	NO	YES
Reformatting		
YES	NO	YES
Summarization		
NO	NO	YES
Grouping		
COLLATING SEQUENCES		
YES	YES	YES
Standard ASCII		
NO	NO	YES
EBCDIC		
NO	NO	YES
User Defined		
NO	NO	YES
Multi-byte		

## FUNCTIONS



## PERFORMANCE

**The UNIX System Sort**

**UNIX**



# FBI nabs notorious hacker

By Mitch Betts and Gary H. Anthes  
SAN DIEGO

Score one for the good guys.

Kevin D. Mitnick, a 31-year-old fugitive hacker thought to have cracked open dozens of corporate and government computers since 1982, was arrested by agents of the Federal Bureau of Investigation last week at his home in Raleigh, N.C.

But computer security experts at the Internet Society Symposium on Network Security here last week warned users not to gloat. The sophisticated high-tech crimes attributed to Mitnick will become more common as the hacking craft becomes ever more automated, they cautioned.

The criminal charges against Mitnick are access device fraud and computer fraud, including the snatching of thousands of credit-card numbers from the Internet. Kent Walker, assistant U.S. attorney in San Francisco, will prosecute the case.

According to an affidavit from FBI Special Agent Levord M. Burns, the cyber-



manhunt went into high gear when Andrew Gross, a systems/network administrator at the San Diego Supercomputer Center, reported a Christmas Day 1994 intrusion into the files of computer security expert Tsutomu Shimomura. The intruder used known but apparently heretofore unused techniques called "IP spoofing" and "session hijacking" to get in [CW, Jan. 30].

The hacker then added backdoor access programs to Shimomura's computer, allowing the intruder to copy files, including advanced security software that other hackers could exploit. One of the files was Unix network monitoring software developed under a grant from the National Security Agency in Fort Meade, Md.

Some of Shimomura's files, as well as a compressed file of stolen credit-card numbers, wound up stored on the servers of The Well, an Internet access provider in San Francisco.

"The Well's files were not compromised or stolen, but some old and unused accounts became a storage bin for files that were stolen from other systems," a Well spokeswoman said. The huge

amount of storage space occupied by the illicit files tipped off Well technicians.

The Well then allowed Shimomura and the FBI to use a back room outfitted with three laptop PCs to monitor the hacker's activities, the spokeswoman said.

## Tracing his tracks

The credit-card numbers were stolen from Netcom On-Line Communication Services, Inc. in San Jose, Calif., another Internet access provider that helped authorities with the electronic chase. The FBI affidavit alleged that Mitnick, to cover his tracks, used cellular modems to dial in to Internet access lines across the country. But the cellular numbers were eventually traced to Mitnick's new apartment in Raleigh.

"Spoofing and [session] hijacking have been known for a decade, but now people are using [automated tools] to make active attacks," said Paul

A. Lambert, a computer security official at Motorola, Inc. who attended the security conference here.

Passive attacks are those in which the intruder listens in on network traffic; active attacks involve generating or changing data. In the Supercomputer Center hijacking, IP packet headers were modified to fool Shimomura's computer into thinking the hacker traffic was coming from a trusted computer.

Stephen T. Kent, chief scientist for security technology at Bolt Beranek and Newman, Inc. in Cambridge, Mass., said the tools commonly used for Internet security are good for authenticating a user when the initial connection is made. But they do not guard against hijacking attacks, in which the session is later grabbed by an intruder.

Hijacking attacks require "network layer authentication" in which every data packet is authenticated cryptographically. Kent said. "If companies don't do this, I predict we will see more and more of these active attacks."

## Victimized

The FBI's affidavit noted that one of superhacker Kevin D. Mitnick's victims was New York Times writer John Markoff, whose electronic mail was read and then deleted. The intruder also made Markoff's Internet account accessible to anyone and activated "backdoor hacking tools to obtain root superuser status on the machine," the affidavit said.

# IBM polishes Karat for distributed net management

By Jean S. Bozman

■ IBM is preparing a trio of announcements for the rollout of its Karat enterprise management platform for distributed systems.

The computer giant's move to add systems management capabilities to its NetView networking management systems will come in waves, as a unified set of applications fans out to IBM's strategic platforms — MVS, AIX, OS/2 and OS/400 — by mid-1996.

IBM faces three-way competition with Sun Microsystems, Inc., which announced its Solstice line in January, and Hewlett-Packard Co., which is developing the Tornado enterprise management platform to extend OpenView. All three vendors plan to move to object-oriented platforms that consolidate data on a global basis and receive network and system alerts from a variety of third-party software packages.

IBM said last week the rollout will occur in the following stages:

- This spring, IBM will release Karat, and IBM's systems management applications will be unified under a single console. All major IBM platforms will be supported by mid-1996.
- By midyear, IBM will publish application programming interfaces (API) for third-party software vendors and large users that plan to write systems management applications. Simple Network Management Protocol Version 2 will be supported by NetView for AIX, supporting manager-to-manager updates.
- Sometime this fall, IBM will move toward

an object-oriented management architecture, taking steps to integrate NetView with Tivoli Systems, Inc.'s object management framework for systems management. IBM licensed the Tivoli technology last year [CW, April 11, 1994].

The new Karat enterprise management platform will include IBM's NetView products, along with their APIs, to maintain upward-compatibility for independent software vendors and current NetView users who may later decide to migrate to the enterprise management platform.

The APIs will enable multiple NetView management consoles to cooperate with other vendors' consoles, IBM said. That would include cooperation with HP's OpenView, analysts noted. NetView consoles running on different operating systems already communicate with one another and can update multiple geographically dispersed NetView consoles, IBM said.

IBM users deploying Unix servers in distributed client/server environments find themselves with a growing need for distributed NetView.

Distributed capabilities "will become very important to us within a year and a half as we set up remote hospitals and rural health clinics with RS/6000s to run their systems," said Don Bricker, a network administrator at Methodist Hospital in Lubbock, Texas. "In small MIS departments, we only have one person in each [hospital] capable of using NetView. When one of them goes on vacation, they [could] hand off to the central site or to another department."

But analysts said NetView pricing will have to be adjusted for distributed use.

That is because it will be far more expensive to run NetView and its follow-on, Karat, on mainframes than on Unix and OS/2 servers. Even now, NetView for AIX costs \$16,500, NetView for OS/2 costs \$4,995, and MVS mainframe NetView costs \$800 to \$2,535 per month. MVS mainframe NetView is priced from \$40,000 to more than \$140,000, depending on mainframe size.

## Simplicity is key

At the same time, IBM is wrestling with an internal matter: how to winnow down the number of applications that will run across mainframes and Unix servers. In all, there are 160 different IBM network and systems management packages.

"One of IBM's problems has been they have too many systems and not enough applications that work across many systems," said Richard Villars, director of network management research at International Data Corp. in Framingham, Mass.

"The key word is simplify," said Barbara Sannerud, research director of the Gartner Group, Inc.'s Systems Software Technology group. "We'll hear them simplifying their message, and we'll see them doing some of that this spring."

Sources in the analyst and user communities said last week they believe IBM also plans to incorporate Distributed Computing Environment (DCE) middleware into all flavors of NetView, whether for the mainframe, Unix servers or PC LAN servers. That way, NetView can leverage DCE's security, timing and directory services to coordinate and secure global data networks.

Senior editor Steve Moore contributed to this story.

## Corrections

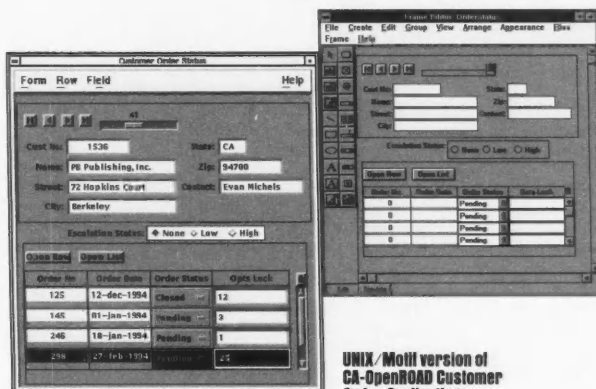
Due to an editing error, the Jan. 30 "Guide to RAID Storage Devices" did not clearly note the capacity of EMC Corp.'s Symmetrix models. The Symmetrix 5500-3's capacity is 360G bytes. The 5500-9's capacity is 1T byte.

Due to a reporting error, the chart for "Vendors fudge on product ship dates" [CW, Feb. 6] incorrectly stated that Informix Software, Inc. promised to deliver an application partitioning feature last November in Release 1.0 of its New Era development tool. Informix did promise that feature but plans to deliver it this summer.

Due to an editing error, a chart in the February issue of *Client/Server Journal* was incorrect. The ratings on the Novell, Inc. NetWare 4.1 chart should be based on a 1-to-10, not a 1-to-5 scale.

The chart for "Unix users gain high-speed host link" [CW, Feb. 13] incorrectly listed the pricing for IBM's Thin Node product for the Unix-based IBM SP/2 parallel server line. The correct pricing is \$138,000 for an entry-level two-node system and \$500,000 for a typically configured eight-node system.

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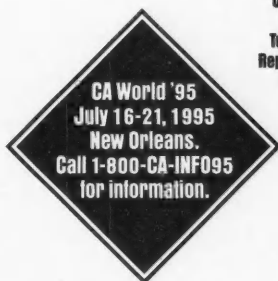
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# AT&T recasts outsourcing

By Ellis Booker

Eager for a bigger share of the booming networking consulting and services market, AT&T Corp. last week launched AT&T Solutions, a business unit targeting top corporate accounts with complex networks.

Other AT&T companies are already in the outsourcing business — notably AT&T Global Information Solutions, AT&T Business Communications Systems and AT&T Network Systems.

But until now "there wasn't a business unit that had the authority to co-

ordinate, facilitate or draft other AT&T units," said Mark Hodges, a vice president at G2 Research, Inc. in Mountain View, Calif.

The lack of such an umbrella organization made complex outsourcing deals "an unwieldy process" for customers, Hodges said.

If AT&T believes in the primacy of network-centric applications, so do some of its largest customers. "Companies that have that ability are going to be at an advantage," said Craig Goldman, chief information officer at The Chase Manhattan Bank NA in New York. "AT&T is well positioned for

that," he added. Ten months ago, Chase turned over its global network operations to AT&T under a multiyear contract. The value of the deal has not been disclosed, but AT&T sources indicated the contract was less than \$500 million.

AT&T Solutions will draw on all of AT&T's considerable resources, including AT&T Bell Laboratories, company executives said last week.

Other AT&T units will continue their own outsourcing work, as AT&T Solutions will target only complex, multi-dimensional deals, executives said.

To ensure cross-unit coordination, AT&T is already implementing a common set of consulting methods and certifications, company officials said. Underscoring the high profile of the new AT&T unit is its executive management team, which has been

culled from the leading lights of the outsourcing industry.

Topping the list is Victor E. Millar, who was introduced last week as president and chief executive officer of the new unit. Millar most recently was president of Unisys Corp.'s Worldwide Information Services, where he was in charge of building the company's services organization (see box at right).

Among those reporting to Millar will be Charles Ansley, vice president of client services and marketing. Ansley joined AT&T last October after a 20-year career at IBM, where his last as-

signment was as global marketing strategist for IBM's Integrated Systems Solutions Corp. (ISSC).

## Rivals in the wings

But AT&T Solutions faces competitors such as General Motors Corp.'s Electronic Data Systems Corp. and ISSC, which have also been pushing network-centric consulting and services.

"IBM just recently reorganized ISSC around global networking, and EDS has been trying for three years to find a strategic partner" for this capability, said Susan Scrupski, editor of "Info-Server," an outsourcing newsletter in Barnegat, N.J.

Although Scrupski said she does not believe AT&T's new unit will have trouble coordinating with other parts at AT&T, more problematic may be its relations with IBM, EDS and Computer Sciences Corp. — all major customers as well as partners with AT&T on outsourcing contracts. "Absolutely, it'll cause bad blood," Scrupski said.

As part of its announcement last week, AT&T Solutions introduced its latest account: Great Western Bank in Los Angeles, the nation's second-largest thrift. AT&T will build a nationwide frame-relay network for Great Western's retail and lending offices in 23 states. Under the \$160 million, seven-year contract, AT&T will manage the network, which replaces the bank's private wide-area network.

At least one network manager last week said he would be reluctant to entrust his network to a brand-new unit, even one with AT&T's pedigree.

"The heart of my business is networking, and entrusting [it] to someone else is [a] major issue," said M. Lewis Temares, vice president and CIO at the University of Miami in Coral Gables, Fla.

## Millar switches teams

In the past two years, Victor Millar has built the services business unit at Unisys into a fast-growing, \$2 billion enterprise that will continue its momentum now that he has moved on to AT&T, analysts said last week.

"He did well at Unisys," said Mark Hodges, a vice president at G2 Research in Mountain View, Calif. "He established them as a credible supplier."

Unisys' Worldwide Information Services group today accounts for 27% of total Unisys revenue, compared with 17% when Millar took it over.

Prior to his stint at Unisys, Millar was chairman and CEO at Great Britain's Saatchi and Saatchi Co., which he joined in 1986 after nearly two decades at Andersen Consulting in Chicago.

Tom Willmott, vice president at Aberdeen Group in Boston, said the services business unit has been "enormously successful for Unisys" and Millar's contribution will be missed. But he said the unit can probably keep up its head of steam.

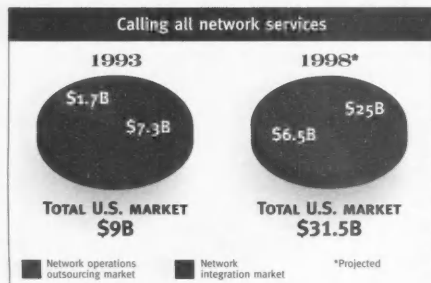
The team that Millar recruited from other consulting companies has enough talent to carry the ball, said William J. Milton Jr., an analyst at Brown Brothers Harriman & Co. in New York.

There had been speculation that Millar left Unisys because he was frustrated with a lack of support from top management, but Unisys Chairman and CEO James A. Unruh hotly denied that in a meeting with analysts last week.

Millar will be replaced by co-presidents James R. Corey and Edward J. Sanderson, both of whom Millar recruited from McKinsey & Co. last year.

According to Stephen A. Carns, president of Unisys' Information Services and Systems group, Millar's group had a 24% increase in revenue last year.

—Neal Weinberg



Source: G2 Research, Inc., Mountain View, Calif.

# Web users cruising for info, not purchases

By Ellis Booker

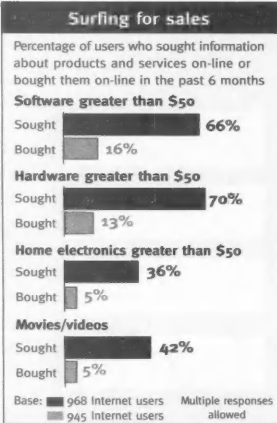
**Now it is a fact: The vast majority of people cruising the World-Wide Web are looking for information, not things to buy.**

That is one of the key conclusions of the largest empirical study to date of Web users and their preferences. It is now being analyzed by the University of Michigan Business School.

The Hermes project, which was conducted last October and November, involved nine on-line surveys. The number of participants on each ranged from 989 to 3,522.

Hermes — no relation to the Microsoft Corp. server product of the same name — turned up the following findings:

- Even under the categories of computer hardware and software, only 15% of respondents said they had bought any-



Source: Hermes project, University of Michigan Business School, Ann Arbor, Mich.

thing on-line.

- On-line buying as a medium trails retail stores and direct-mail channels.
- Only 18% of respondents spent more than \$50 on on-line purchases in the previous six months.
- Four to five times as many people use the Web to look for information than to buy goods.

## Future possibilities

Yet other evidence points to the potential of the Web as a marketing and sales channel, contended Sunil Gupta, the Michigan Business School professor heading the project.

"Commercial Web sites are currently below direct mail [for making buying decisions]. But when we asked what they'd use in six months, they said they'll use the Web more," he said.

Another key finding, Gupta added, is that cybersurfers like and trust the infor-

mation they gather from both commercial and noncommercial Web sites.

This means Web sites are "high-involvement" settings where vendors can communicate with customers and where a customer's decision-making can be influenced, he said.

Finally, the Hermes results show that cybersurfers are generally not seeking discounts on products. Rather, when asked what the most desirable characteristic was for a Web site, respondents gave the highest score to "good quality information."

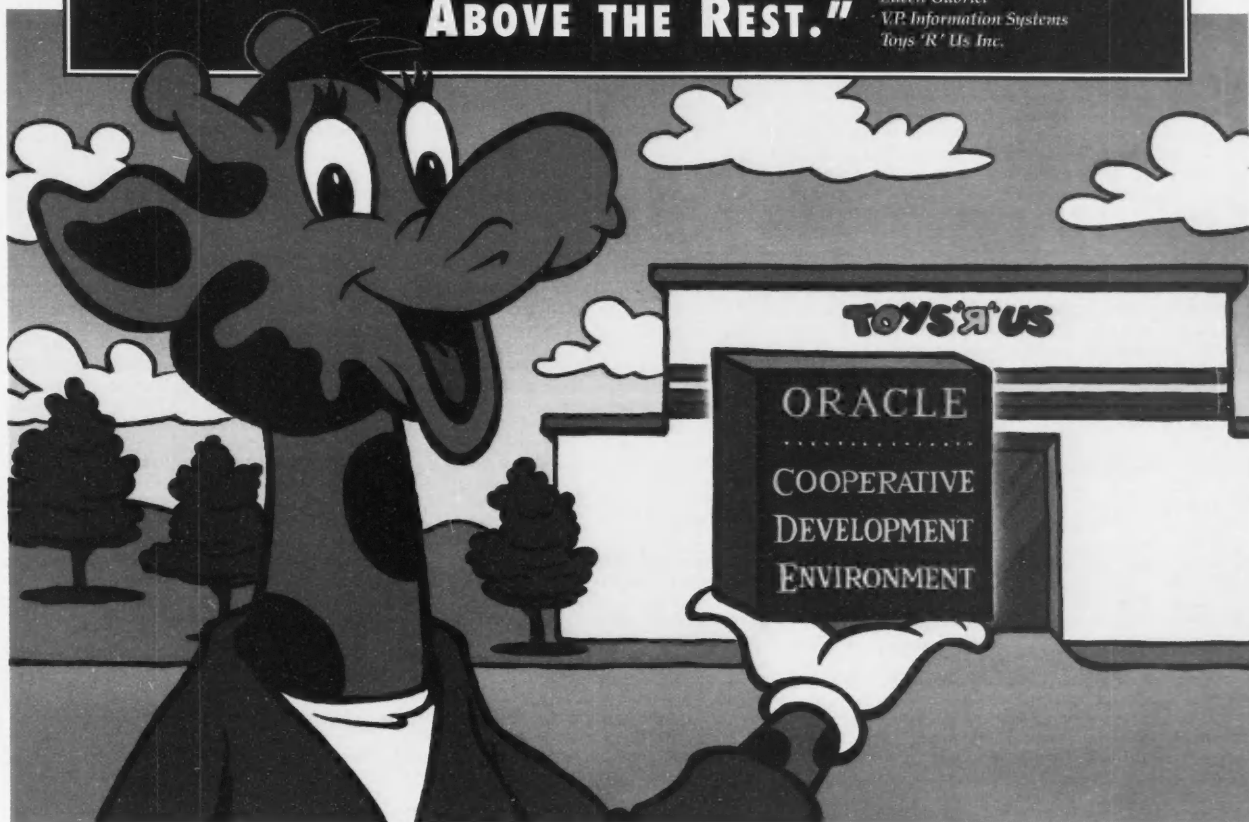
Gupta said he intends to launch a larger, follow-up study to Hermes in April. He has also begun collecting data from a list of corporate Web sites. He hopes to increase this corporate panel, now consisting of 165 companies, to 500 sites.

Hermes project details, including raw data and charts, are available at <http://www.umich.edu/gupta/hermes.htm>.

# "ORACLE CDE STOOD HEAD AND SHOULDERS

## ABOVE THE REST."

Eileen Gabriel  
VP, Information Systems  
Toys 'R' Us Inc.



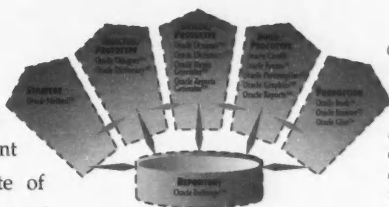
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# ORACLE

# Tandem rises above with Himalaya

There's been a quiet makeover at a mainframe-style company that two years ago appeared to be hitting the skids. Tandem Computers, founded in 1974, is the leading supplier of fault-tolerant systems and is now a purveyor of open parallel systems in the form of its Himalaya series processors. Although the emphasis is now on parallel systems, the Himalaya happens to be a continuously available design. When these redundant processors are teamed with Tandem's NonStop SQL database management system, you have a combination that few can rival for reliability—and maturity.

Two years ago, Tandem underwent a face-lift. It stopped depending on its own chip designs and adopted Mips Technologies' microprocessors for the Himalaya. This eliminated a huge expense and shifted the need for progressive chip advances to a leading RISC designer. (Mips is now a subsidiary of Silicon Graphics.)

At the same time, it took its NonStop SQL transaction processing DBMS, which already had a number of parallel features, and extended it for use on massively parallel machines. Because fault-tolerant computer designs keep processors and memory distributed across at least two distinct systems rather than pooling memory for a group of processors, NonStop SQL was inherently distributed and parallel from the time it came out in 1987.

Tandem has enhanced its features to offer NonStop SQL/MP, or massively parallel processing. One of the keys to parallel database operation is the skill with which its optimizer analyzes a query for parallel execution. The NonStop SQL/MP optimizer doesn't select the best sequential execution plan first and then make it parallel the way some relational DBMS optimizers do. It creates what it detects as the best parallel plan as a first step, says Michael Burwen, a principal at Superperformance Computing Service in Mountain View, Calif.

Needless to say, NonStop SQL retained its on-line transaction processing characteristics. The database engine remains available and running while data is loaded and indexes are created or purged.

"This is the best SQL implementation around at this moment," says Jim Gray, a visiting fellow at the University of California at Berkeley who frequently writes about parallel database issues. The original NonStop SQL "is long in the tooth. It's been in the field for over five years with good operational features."

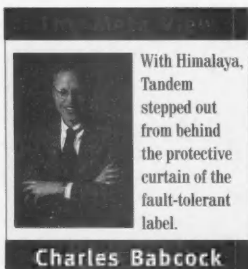
With Himalaya, Tandem also stepped out from behind the protective curtain of the fault-tolerant label, which formerly commanded a premium price. A two-processor Himalaya K20000 is priced at \$339,000, and an entry-level K2000, which will be available next month, is priced at \$135,000. These prices represent 35% to 45% reductions per year for the past two years over the previous Tandem product lines even though no fault-tolerant qualities have been sacrificed.

Because of the price cuts, Himalaya unit sales are double those of predecessor models, and Tandem's profitability has also nearly doubled. Earnings per share increased from 16 cents in the fourth quarter of 1992 to 30 cents in last year's fourth quarter.

At the same time, Tandem has been moving beyond its traditional on-line transaction processing approach and moving into decision-support systems. Ameritech, the regional Bell operating company in Chicago, uses Tandem systems for its Customer Usage Tracking System to analyze calling patterns among its 12 million customers.

"Tandem is a good story," agrees Christopher Willard, parallel and supercomputer analyst at International Data Corp. in Mountain View, Calif. "It's offering a parallel system with a lot of attention to availability."

Babcock is *Computerworld's* technical editor. His MCI Mail address is 575-2737.



## News Shorts

### Management costs to rise after Windows 95 ships, then fall

In the face of ever-rising costs to manage PCs enterprisewide, two studies surfaced last week with the surprising news that the tide may turn. The catalyst behind this change is **Microsoft Corp.'s** Windows 95, according to reports released separately by International Data Corp. (IDC) in Framingham, Mass., and Forrester Research, Inc. in Cambridge, Mass. Both studies examined user costs and the impact Windows 95 will have on desktop support, management and training costs. The reports predict that desktop management costs will spike up in the initial phase of Windows 95 implementation but then start to drop a year after the operating system ships. By the end of next year, IDC anticipates users spending more than \$400 million for outside training and support for Windows 95 migration. Yet that cost mounts to the \$1 billion mark once internal support and end-user training are factored into the equation.

### Apple offers logo deal

**Apple Computer, Inc.** last week told developers using Microsoft's Video for Windows that it will not sue them, provided the developers attach an Apple label to their final product that says it "uses Apple multimedia technology." The action comes in the wake of Apple's lawsuit against **Microsoft and Intel Corp.** for allegedly using code from Apple's QuickTime video software in Video for Windows. Apple is also suing **San Francisco Canyon Co.**, co-developers with Apple of QuickTime for Windows, saying Canyon provided the code to Intel and Microsoft.

### EC reacts to antitrust ruling

The **European Commission** has not decided whether to reopen its antitrust case against Microsoft following the U.S. District Court's decision to reject the settlement between Microsoft and the U.S. Department of Justice. In July, Microsoft agreed to end restrictive licensing practices throughout the European Economic Area in an out-of-court settlement. The two cases cover similar ground and are legally separate, although the parties involved did cooperate.

### When you care enough to revamp

**Hallmark Cards, Inc.** recently named two new information systems directors as part of an overall IS reorganization. Susan Chambers is now director of IS for retail development at the Kansas City, Mo., greeting card manufacturer. Andy Clippard, also a director now, will provide technology services to the product development, strategy/marketing and emerging brands and channel divisions.

### Santa Cruz unveils 'net software

The **Santa Cruz Operation's** IXI subsidiary last week announced IXI Panorama, a Unix desktop environment with a Mosaic interface that links to the Internet. The desktop, intended for use by commercial Unix users such as financial traders at large banks and financial institutions, is priced at \$179.

### HP, NEC add Pentium PCs

**Hewlett-Packard Co.** and **NEC Technologies, Inc.** last week introduced high-end Pentium-based additions to their corporate lines. HP's dual-processor-capable Vectra XU 5/100C PC incorporates Peripheral

Component Interconnect technology and is based on the 100-MHz Pentium processor from Intel. Pricing will be available in March when the system ships. NEC, meanwhile, expanded its Image P series by announcing 90-MHz and 100-MHz versions, including a top-of-the-line dual-processor-enabled mini tower model. Prices start at \$4,199 for a 100-MHz Pentium-based system.

### Gupta upgrades database

**Gupta Corp.** in Menlo Park, Calif., unveiled a major upgrade of its database last week, along with improved management utilities. New features in SQLBase 6.0, due to ship next month, include two-phase commit, triggers and remote monitoring capabilities. Gupta also announced runtime copies of SQLBase priced at \$99 each and SQLBase Ranger, a \$395 desktop or laptop reporting aid for finding and moving data stored in server databases.

### ATM spec clears first hurdle

Last week, the 25M bit/sec. Asynchronous Transfer Mode (ATM) transport specification jumped its first hurdle on its way to ratification as a standard. The ATM Forum's Physical Layer Working Group voted to adopt the Desktop ATM25 Alliance's 25.6M bit/sec. specification as the standard method for lower-speed ATM transmission. A straw vote for technical clarification of the specification will take place in April, followed by a final vote.

### Platinum on acquisition trail

**Platinum Technology, Inc.** has acquired **BrownStone Solutions, Inc.**, a New York developer of repository and data warehousing software. The deal, scheduled to be formally announced this week, continues a string of acquisitions by Platinum as it moves to put together a distributed systems management framework covering both MVS and Unix systems. Platinum, in Oakbrook Terrace, Ill., plans to use BrownStone's technology to develop an object repository for storing data on application and business processes.

**SHORT TAKES** Allstate Insurance Co. has named company veteran Frank W. Pollard to the post of senior vice president of information technologies. . . . **Nokia Group**, a Finnish telecommunications company, invested \$7.5 million in **Geoworks, Inc.**, which makes Geos, an operating system targeted at personal digital assistants and set-top boxes.



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# IBM sticks with Unix on OS/2 strategy

By Jean S. Bozman

IBM is still pursuing its plan to put a Unix interface on top of its OS/2 operating system, company officials confirmed last week. Users will be able to run Unix applications from the OS/2 PowerPC platform using Unix-standard application

programming interfaces (API).

The move expands upon an earlier statement by IBM that it would not bring out multiple personalities on top of a common microkernel-based operating system all at once [CW, Jan. 9]. At that time, IBM had said it would deliver just the OS/2 personality on the microkernel

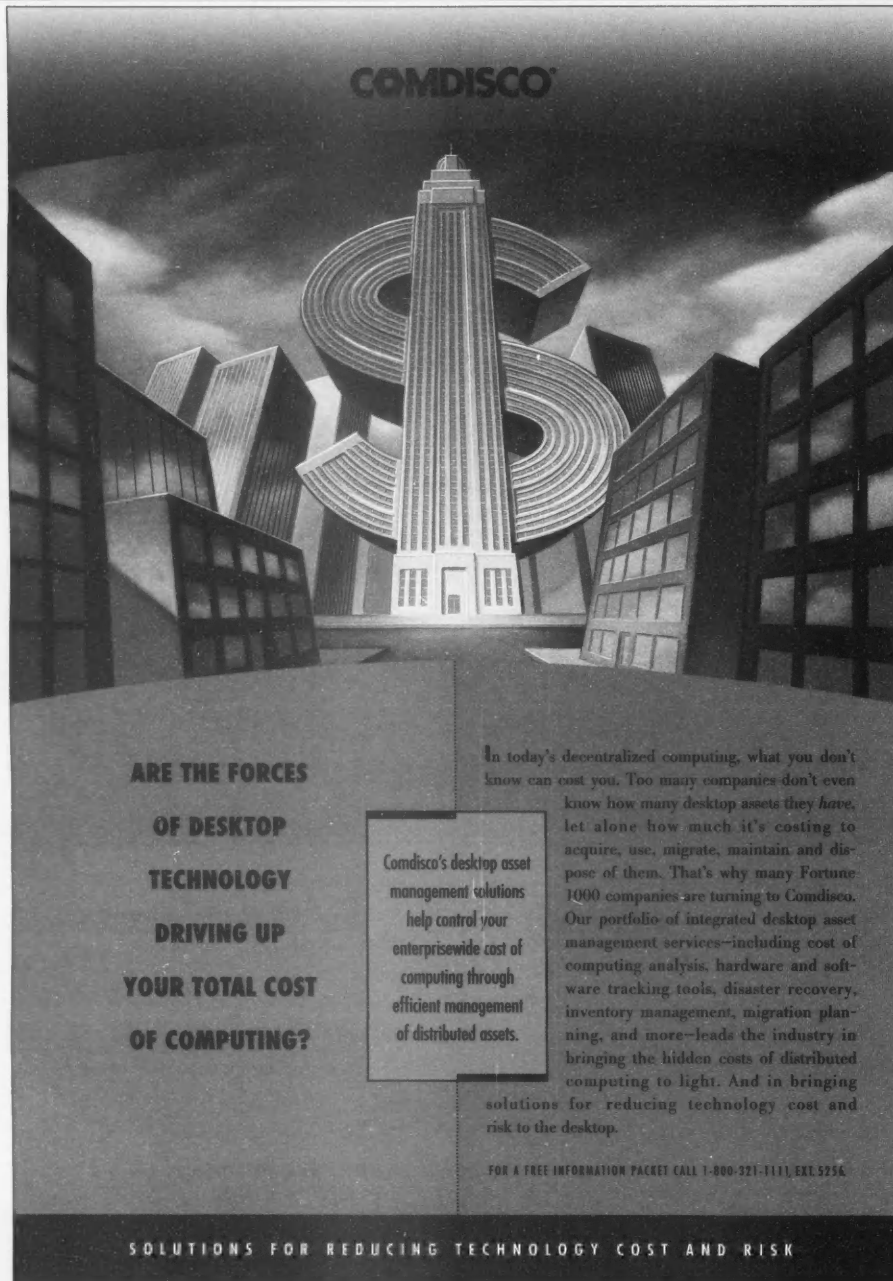
by midyear and would later deliver other personalities in future operating systems.

Last week, IBM said it "does intend to enable OS/2 for PowerPC users to have access to popular industry-standard Unix APIs," such as those from X/Open Co., the single-Unix specification (Spec

1170), the XWindow System and selected AIX APIs.

In the end, however, it may act more like a Posix interface that allows proprietary operating systems such as IBM's MVS to run some Unix applications, analysts said.

Jeff Mason, vice president of world-



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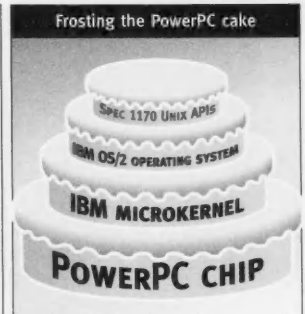
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wide marketing for IBM's RS/6000 division, said earlier this month that the firm's Unix-on-a-microkernel concept began in IBM's WorkPlace technology plan but has since been modified. An AIX-on-Intel microkernel plan was dropped last year, some analysts said. But IBM has said it is using microkernel technology to move OS/2 from Intel Corp. to PowerPC processors.

## Users ambivalent

OS/2 users seemed more bewildered than impressed by the prospect of Unix-on-OS/2. "Usually, the people here are [using] entirely OS/2 or entirely Unix," said one information systems manager at a Midwestern insurance company. "It's really not a blend of the two."

Another IS executive, who also requested anonymity, said, "Presumably, this means that if I'm a Unix developer, I can run my Unix and my OS/2 applications together. Is that something people worry about today? Not yet."

OS/2 is a multitasking desktop system that IBM claims has more than 7 million copies worldwide and about 2,500 desktop and server applications. But as a server for business applications, OS/2 faces a blizzard of competition from Microsoft Corp.'s Windows NT, Unix and Novell, Inc.'s NetWare, analysts said.

"Anything they can do to get more applications running on OS/2 today would be a big boost to the success of the environment," said Tony Iams, a research analyst at D. H. Brown Associates, Inc. in Port Chester, N.Y. "This is strictly support for source code compatibility. You will be able to recompile Unix applications for OS/2." That could include Unix operating systems other than IBM's AIX, he said.

Dan Kuznetsky, an analyst at International Data Corp. in Framingham, Mass., said there are few OS/2 server applications compared with the number of server packages on various Unix platforms.



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## Data warehousing

# Complexity rising on data access front

By Rosemary Cafasso  
ORLANDO

Although the industry has been talking up data warehousing for a long time, many users are still uncertain how to proceed with this information delivery strategy.

"It's a lot more complex than I thought it could possibly be," said Kelly Flynn, a technology specialist at Flint Ink Corp. in Detroit, which hopes to set up a warehouse on an IBM AS/400.

Flynn and other attendees at the Data Warehousing Conference here last week said they believe warehousing can finally deliver the data access that end users have long demanded. But they also said it is difficult to pull together because it involves so many pieces.

Warehousing is an old mainframe concept now enjoying a rebirth with the movement to client/server computing. In short, warehousing calls for pulling data out of production systems and creating databases, or warehouses, that are dedicated to end-user queries.

"It does seem that within 18 to 24 months, data warehousing has exploded," said Frank McGuff, a director of Braun Technology Group, a decision-support and data warehousing consulting group in Chicago. "The bad news is users have expectations and misconceptions of the simplicity of the task."

The problem, users noted, is that warehousing requires so many decisions — ranging from the selection of a hardware platform, database and access tools to the management of end-user queries and the warehouse. In addition, users need to pick tools for replication, data extraction, updates and security.

Users must also decide how to maintain meta data — or data about the warehouse — and whether a company would be best served by a centralized warehouse or several small warehouses.

"We didn't do it a little piece at a time, and now we are going back and doing it by chunks," said one project leader from a West Coast communications company, who requested anonymity. The biggest challenges are figuring out the amount and type of data to load into a warehouse, he said.

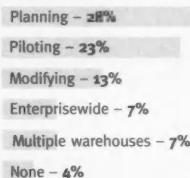
## Start small

While analysts agreed that many warehousing issues need to be addressed, they also said users should keep a narrow focus on their warehousing efforts. They recommended completing a small project instead of trying to make all the warehousing decisions at once.

"We say focus first on a core warehouse and then figure out how to distribute it to users," said Ken Orr, president of The Ken Orr Institute in Topeka, Kan., in a presentation at the warehousing conference.

Even so, users said the task is still not easy. Michael Vetrano, a database administrator at Avis, Inc. in Garden City, N.Y., said Avis is completing a warehousing prototype on a Sybase, Inc. database management system of about 5G bytes. While the prototype is going well, the company must now make several basic decisions about the final production warehouse platform and end-user data access tools.

## What is your current deployment of data warehousing?



Base: 400 IS professionals at Fortune 1,000 companies (not all categories listed)

Source: The Spiral Group, Bedford, N.H.

# OLAP: Who needs it?

Users grapple with impact of expensive, support-heavy on-line analytical processing

By Rosemary Cafasso  
ORLANDO

To OLAP or not to OLAP?

That question hounded many users at the Data Warehousing Conference here last week as they weighed the benefits and drawbacks of OLAP, or on-line analytical processing.

Take David Scott, manager of applications at Carolina Power & Light Co. in Raleigh, N.C., and an attendee at a one-day OLAP Forum that was part of the warehousing conference. Scott is evaluating various OLAP offerings, and while it appears the tools are easier to use than many SQL query tools, he questioned, "How many dimensions do we really need?"

Scott was referring to an OLAP tool's ability to present multiple cuts or dimensions of data.

The emerging OLAP field includes multidimensional databases and access tools as well as other decision-support technologies. OLAP tools are attracting more attention lately as alternative data storage and access products to the traditional SQL environment because many of them have been fine-tuned for complex ad hoc queries.

The multidimensional capabilities, for example, allow users to look at data from many different perspectives.

## Complicated decision

But selecting an OLAP product is far from easy, users said. For starters, some users are not sure their data warehousing strategies really need these tools. Also, OLAP tools may be easier to use than some SQL tools, but they will still mean yet another technology for information systems departments to support.

"Right now, we are support-strapped," said David Tanaka, a decision-support systems manager at Hospital Health Plan Management Corp. in Minneapolis. "If we introduce something like OLAP, we will have to give it a lot of support."

Also, an OLAP commitment will not be cheap. Prices range from the \$1,000 per-user price for Cross-Target from Dimensional Insight, Inc. to nearly \$100,000 for a full suite of database, applications and development and access tools from Pilot Software, Inc.

Yet, like many users, Tanaka said discounting the need for OLAP tools may not make sense,

either. His company is taking at least two approaches to get at data, and both are too slow, he said.

One approach involves downloading data from various databases to a Watcom database — from the Powersoft subsidiary of Sybase, Inc. — so users can analyze data from the desktop. The company is also using Microsoft Corp. Open Database Connectivity gateways to reach data in a variety of databases.

Many OLAP products could come in handy for warehousing, analysts said. OLAP databases, for example, store data in cells in multiple layers or dimensions in the database, instead of in the traditional rows and columns of a relational system. Typically, these layers would provide more detail on a particular category of data.

Relational systems, on the other hand, have been fine-tuned for volume processing and can bog down during complex queries.

Unlike many SQL query tools that require some understanding of SQL, OLAP access tools typically use a spreadsheet metaphor and give options such as drill-down or "slice-and-dice" data.

"There are certain problems with SQL front ends — you can't easily build in intelligence or do dynamic analysis," said Nicholas Galembo, a senior systems analyst for decision-support systems at HealthNet in Woodland Hills, Calif. "We are hoping that's what OLAP will provide."

# NetWare 4.1 support builds

By Laura DiDio  
BOSTON

In a move that Novell, Inc. claimed underscores growing developer support for NetWare 4.1, two third-party suppliers last week unveiled software optimized for the new environment at Network Expo 95.

At the same time, Novell announced that its NetWare 4.1 Software Developer's Kit Special Edition, which costs less than \$50 and incorporates a two-user version of NetWare 4.1, is now shipping in volume. Novell has shipped alpha and beta releases of the NetWare 4.1 kit since last May. However, these earlier packages did not contain a free two-user version of the 4.1 network operating system.

Cheyenne Communications, Inc. in Roslyn Heights, N.Y., introduced its Faxserve 3.0 software, and Legato Systems, Inc. in Palo Alto, Calif., rolled out NetWorker 3.1 for NetWare, a network storage management software program that automates network backup procedures.

Both products are among the first to directly use the distributed

NetWare Directory Services (NDS) component of the new network operating system, according to Scott Wells, Novell's senior manager of NetWare Developer Programs.

Faxserve 3.0, for example, enables users to send and receive fax documents from their desktops through Windows, MS-DOS, electronic-mail packages and other software applications that support fax integration, Wells said.

Using NDS, Faxserve 3.0 adds fax server objects to the directory. This means users no longer have to log in separately for fax servers or attach to different servers to access fax capabilities, Wells said. Faxserve 3.0 also eliminates the need for network administrators to install separate fax management software packages.

Similarly, Legato's NetWorker 3.1 network storage management software relies on NetWare 4.1's NDS to ensure automated systems backup across the entire enter-

prise, according to Wells.


Bob Sakakeeny, an analyst at Aberdeen Group in Boston, said he viewed the latest NetWare 4.1-compatible announcements positively but noted that they are incremental steps. He said midsize users who constitute the bulk of the NetWare 3.x installed base are content with the product and more than pleased with its performance.

"Users who have massive NetWare 3.x installations are telling us they're in no hurry to migrate because they haven't maxed out the capabilities of 3.x, and they're still reticent about NetWare 4.1 because it's still new and relatively unproven," Sakakeeny said.

"The availability of applications and the 4.1 [developer's kit] will assure them of third-party support for the new [network operating system], but it won't cause them to stampede to the nearest reseller and buy it right away," he added.

## NetWare special

The NetWare 4.1 Software Developer's Kit Special Edition includes everything for developers to create full client/server applications.



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# Compaq pitches PC management initiative

By Jaikumar Vijayan and Steve Moore

Impatient with the progress of efforts to develop a PC management standard, Compaq Computer Corp. last week outlined its own desktop management initiative. Some saw the move as an attempt to leapfrog the standards process and get a leg up on the competition.

Specifically, Compaq unveiled its Intelligent Management strategy, which will reportedly make it easier for users and network administrators to inventory, troubleshoot and protect PCs in a networked environment. Compliant products are expected out by year's end.

## Possible dichotomy

The initiative sparked some concern because the Houston company appears to be splitting from the Desktop Management Task Force's (DMTF) standards effort to create its own standards. But Compaq said its standards will be fully compliant with the DMTF's Desktop Management Interface (DMI) in the long term.

Still, last week, the company dismissed DMI as "not yet ready for widespread [network] deployment" and light on functionality. There are DMI-compliant products on the market now from companies such as Digital Equipment Corp., Hewlett-Packard Co., Intel Corp., NEC Technologies, Inc. and several other vendors.

Though Compaq is a member of the DMTF's steering committee, the maverick company has lined up nine vendors to participate in its Compaq Desktop Manage-

ment Solutions Partner Program. They include Intel, Cheyenne Software, Inc., McAfee Associates, Inc., Novell, Inc., Symantec Corp. and Tally Systems Corp. These companies will develop and integrate desktop management tools on Compaq hardware.

For example, Tally's NetCensus desktop inventory tool will be able to recognize and gather information from LAN-connected Compaq hardware in greater detail than before.

The partners program will offer users an alternative approach to managing the hardware and software in LAN-attached PCs. However, it is drawing criticism already.

"We've got to start someplace and build on a foundation. If Compaq has been in [DMTF] and agreed to the standard, they should run with it," said Glen Farrell, LAN systems coordinator at Firestone Textiles Co. in Woodstock, Ontario.

Compaq said it will back the DMTF standard in the long term. "We are fully committed to industry standards. We are simply taking tools that exist today with a limited amount of functionality and giving them a lot more functionality," said Andrew Watson, director of desktop marketing at Compaq.

Not everyone was buying that, however. "It seems like what they are trying to do is create a mini-consortium

of their own to define another set of desktop management standards," said a spokesman at a PC vendor that expects to have DMI-complaint systems by midyear.

By working with its partners, Compaq expects to sell PCs that have detailed hardware and software information integrated into them; that information could be accessed from any node on a variety of networks. The depth of the information and its easier accessibility will make functions such as asset management and inventory tracking much easier, Watson said.

Some analysts said such an approach would give Compaq an edge as far as implementing desktop management tools is concerned.

"DMI compliance is not going to be a reality until the [operating system] support is there," said Richard Zwetchnenbaum, an analyst at International Data Corp. in Framingham, Mass. "This presents an opportunity for vendors like Compaq to offer a differentiated solution that is compliant with DMI but is a superset of it in terms of features and timing."

A DMTF spokesman said implementations of the DMI service layer are currently available for DOS and Windows 3.1. Microsoft Corp. plans to implement the layer in Windows 95.

## New specification

The DMTF last week announced a new Software Management Information Format (MIF) specification. The MIF provides a method for software publishers to communicate version identification and audit dates for their products.

## Decree denied

CONTINUED FROM PAGE 1

information officer at a major nonprofit organization in New York.

"I don't think it'll have any impact on our users," said Bill Cornfield, president of New York consultancy The Windows Support Group, Inc., whose clients include the National Football League, Anheuser-Busch Cos. and American Express Corp.'s Gold Card division. "The practical impact will be very small."

"I love all of Microsoft's products so I don't care," said Cheryl Cade, a systems analyst at Pacific Bell in San Francisco. "I can see where people see the need for antitrust action, but I don't think there's anything that can

stop [Microsoft]."

Of course, a higher court order upholding Sporkin's action could open a Pandora's box for Microsoft.

For example, if Sporkin's refusal to sign off is upheld, the Justice Department may be more likely to litigate the charges against Microsoft that led to the settlement.

Among other side effects, though not directly related, could be a delay or even the disallowance of Microsoft's proposed acquisition of Intuit Corp., a Menlo Park, Calif., maker of personal financial management software. The uproar may also put pressure on Microsoft to voluntarily or otherwise alter its business practices, much as IBM did after the Justice Department dropped an antitrust suit against it in the 1970s. And it is possible that competitors could step up attacks.

## Wheels of justice

But several antitrust experts said the Justice Department and Microsoft have a very good chance of winning their appeal. And if they lose that one, they can appeal all the way to the U.S. Supreme Court, meaning it may be years before the case progresses any further.

In addition, a major reason the Justice Department brought such a narrow consent decree to Sporkin in the first place is because it is excruciatingly difficult to prove anti-competitive practices other than fairly simple ones such as price fixing, much less convince a jury of guilt, said Gerry J. Elman. He is a former attorney at the Justice Department's antitrust division and chief executive officer of Elman Wilf & Fried, a law firm in Media, Pa.

Senior editor Elizabeth Heitler contributed to this report.

## Unorthodox opinions

High on the list of complaints in the government's appeal is that U.S. District Court Judge Stanley Sporkin ignored the fact that judges cannot bring antitrust charges against anyone. That power is held by the Department of Justice.

"The judge doesn't get to rewrite the complaint; he has to take the complaint as given" by the Justice Department, said Joe Sims, an antitrust attorney at Jones, Day, Reavis & Pogue in Washington.

Although Sporkin's decision to throw out the consent decree was not unexpected, it was definitely unorthodox.

Nodding to attorney Gary Reback's filings, Sporkin said the late-breaking "information and arguments submitted are helpful, particularly the submissions received from" Reback's law firm.

That firm, Wilson, Sonsini, Goodrich & Rosati in Palo Alto, Calif., had filed several briefs in a last-ditch effort to derail the government's negotiated antitrust settlement with Microsoft.

Calling the settlement "too little, too late," Sporkin's opinion said the proposed consent decree does not meet the public interest under the Tunney Act (see chart at left), which governs antitrust consent decrees. He argued that the decree is too narrow in scope because it restricts only Windows licensing policies and nondisclosure agreements and still allows Microsoft to make vaporware announcements that freeze the market [CW, Feb. 13].

Sporkin said if he signed the decree, "the message will be that Microsoft is so powerful that neither the market nor the government is capable of dealing with all of its monopolistic practices."

The judge has suggested that the decree should have covered other issues. These include vaporware announcements and allegations of Microsoft leveraging its operating systems dominance to gain unfair advantage in applications.

Anne K. Bingham, head of the Justice Department's Antitrust Division, said she vigorously objected to Sporkin's efforts to get investigative details, consider new charges and substitute his own notion of an ideal settlement. She said future settlements will be hard to get if the defendant suspects a judge will just reopen the investigation. — Stuart J. Johnston and Mitch Betts



## The Justice Department appeal

U.S. Assistant Attorney General Anne Bingaman's unit said Judge Sporkin did the following:

- 1 "Erroneously concluded that the Tunney Act permits a court to review the history of [the] investigation, the government's decision not to challenge particular practices ... and its intentions to challenge uncharged conduct in the future."
- 2 "Fail[ed] to limit [his] consideration of the antitrust consequences of the [consent] decree to whether the relief ... adequately remedies the violations set forth in the complaint. Indeed, the court condemned the decree because it did not dissipate market power acquired through lawful conduct and ... did not address antitrust concerns not even alleged in the complaint."
- 3 "Improperly departed from the principle that he must defer to the policy and litigation judgments of the Department of Justice."
- 4 The Justice Department's record of filing three consent decrees per month "is threatened while Judge Sporkin's ruling stands. Its inevitable effect is to deter parties from entering into consent judgments."



# Developers laud Delphi

By Elizabeth Heichler  
SAN FRANCISCO

Despite the recent financial and managerial uproar at Borland International, Inc., the company remains a strong contender in the war for software developers' hearts and minds. That is, if the enthusiastic reception for last week's launch of its Delphi applications development tool is any indication.

Attendees at the Software Development '95 show at the Moscone Center here crowded Borland's exhibit Tuesday, following the rumor that the company would give away thousands of free copies of the much-heralded product. Delphi was later distributed to the capacity crowd of more than 2,000 developers who sat through the 1½-hour unveiling.

Analysts have pointed recently to Borland's tenuous financial situation as a large disincentive to invest in the company's development tools, but developers

We're a C and C++ shop," he explained. But he added that enough similarities exist between C and Pascal that it will not be an overwhelming problem.

While developers at Martin Marietta are using tools such as PowerBuilder, Jones said he likes to write at a lower level than many client/server tools permit.

"This product lets me get at the code," he explained.

"I think [Delphi] is one of the most interesting products to come along for client/server," said Roland Racko, an independent consultant in New York. Borland's Pascal implementation delivers good applications performance,

addressing a major issue for client/server developers who find performance slowed by tools that use interpreted rather than compiled languages, he said.

Among software companies announcing support for Delphi were TurboPower in Colorado Springs, which brought out two component libraries that can be used with Delphi. Each library costs \$199 and will be available in the second quarter, according to TurboPower.

"I think [Delphi] is one of the most interesting products to come along for client/server,"  
— Roland Racko, consultant

systems at Rockwell International Corp.'s Collins Avionics & Communications division in Cedar Rapids, Iowa. Three developers in Taylor's group are using a field-test version of Delphi.

"We've used Visual Basic for some time. Delphi is as easy to use and seems to have more power," Taylor said. He added that he liked Delphi's ability to generate executable files. It would be "excellent" for developing factory floor data collection applications, he said.

## Put it to the test

Developers said they will evaluate Delphi against client/server tools from Powersoft, a subsidiary of Sybase, Inc.; Gupta Corp.; Oracle Corp.; and Microsoft Corp. Most often cited were Microsoft's Visual Basic and Powersoft's PowerBuilder, against which Delphi has the advantage of using a compiled rather than interpreted language—thus delivering better performance for applications, developers said. They also deemed Delphi a more fully object-oriented environment.

Jonathan Jones, technical lead at Martin Marietta Corp. in Littleton, Colo., plans to put Delphi through its paces to see how it runs against large databases. "I work in the financial reporting area, and we've got 20 million rows in a database," he said. "We're very interested in it. Right now, we'll do anything to help accelerate applications."

However, Jones said he had some reservations about the fact that Delphi is based on Object Pascal. "If it were C-based vs. Pascal, I would be all over it.

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# Two-chip P6 promises performance in '96

By Jaikumar Vijayan

**Generational changes are taking place rather rapidly these days at Intel Corp.**

The Santa Clara, Calif.-based chip maker last week sketched out details for its next-generation P6 processor, even before the silicon has settled on its Pentium processor family announcement. But products based on the P6 are expected to have a relatively slow ramp-up, not appearing in volume until at least mid-1996 or so, analysts said.

The new 2.9V Intel chip, due to start shipping the second half of this year, will operate at 133 MHz and support data integrity features such as Error Checking and Correction and Fault Analysis and Recovery, according to Intel.

The P6 is expected in the high-end workstation and multiprocessor class of systems, but Intel claimed that sub-\$4,000 desktops will be available by year's end.

The P6 maintains the x86 instruction set, which means that all current software and applications running on x86 architecture will be compatible with the P6. However, the processor's multichip design means that systems vendors will have to redesign motherboards to incorporate it. This could also result in a relatively slow availability of systems based on the product.

Unlike standard processors, in real-

ity the P6 is a two-chip module, with an integrated 256K-bit L2 cache physically situated next to the CPU. This design significantly increases the performance of the processor, said Dean McCarron, an analyst at Mercury Research, Inc. in Scottsdale, Ariz.

"The raw performance boost as a result of this feature is likely to be around 70% to 80%," compared with that of current Pentium processors because it eliminates the need for a separate, external L2 cache, McCarron said.

## P6: Intel's next generation

- 32-bit architecture
- 256K-bit integrated L2 cache
- Performs at 200 SPECint92 at 133 MHz, twice the performance of Pentium
- Transistors: 5.5 million
- Dynamic Execution microarchitecture (branch prediction, speculative execution)
- 2.9V power supply, 14W typical power dissipation

Performance is further boosted by the incorporation of technology called Dynamic Execution, a big iron technique that rival chip maker Advanced Micro Devices, Inc. has already incorporated into its K5 Pentium-class processors, due to be released around midyear. The technology basically uses techniques such as speculative execution of instructions and advanced branch prediction capabilities to speed up performance.

The initial high cost of the chip will mean that desktop products in the \$4,000 range based around the P6 will not be widely available until mid-1996, said Tony Massimini, an analyst at In-Stat Research, Inc. in Scottsdale, Ariz.

Early adopters will most likely put the processors into high-end application servers and workstations and will use Intel's upcoming 120- and 150-MHz Pentium chips in desktops and low-end servers, analysts said.

Intel said it has already sent samples of the chip to vendors.

The multichip design of the P6, however, raises questions about the compatibility of clone processors with Intel's newest processor. Because of the integrated static RAM on the module, the P6's pin-outs are very different from those of current processors and will make pin-for-pin compatibility impossible for clone manufacturers.

For the same reason, upgrade paths from Pentium to P6 will not be available for some time after the P6 chip is released because the P6 pin-outs are different from the Pentium's, analysts said.

Pin-for-pin compatibility will probably not be possible between Intel's P6 and rival AMD's K5 processor, a spokesman at AMD acknowledged. "The real issue is that this is an x86 architecture. The K5 also uses the x86 instruction set," so all software that runs on the new processor will also run on the K5, the spokesman said.

## Chip rivals gear up for Intel's latest

**T**he P6 will represent a significant improvement over current Pentium-based systems, but it will not be the only player by far.

The PowerPC camp is getting ready to fire its own salvos. Apple Computer, Inc., IBM and Motorola, Inc. last week outlined performance targets for processors that outstrip the P6.

For instance, by year's end some versions of the PowerPC 620 family—aimed at the application server and technical workstations market—will achieve a SPECint of 330, compared with a SPECint of 200 for the P6.

SPECint is a benchmark that measures integer performance of the processor. Versions of the PowerPC 604, aimed at medium and high-end commercial applications, will achieve a SPECint of 225.

Companies such as AMD and Cyrix Corp., which are direct rivals of Intel and the Pentium, are also getting set to announce processors.

These offerings will not be quite in the same league as the P6 but will still offer enough gains over current Pentium systems to make them attractive, analysts said. These chips are expected to ship in the second half.

—Jaikumar Vijayan

## IBM drops RAID boost

CONTINUED FROM PAGE 1

sons.

IBM's about-face "could change our thinking," said an information systems official at a financial services company in the Midwest that is looking at expanding its Ramac installation. "It just cuts down on the opportunity," said the executive, who asked not to be named.

To appease customers who had been promised a capacity increase, IBM will essentially sell two controllers for the price of one, said Steve Marshall, manager of international sales at IBM's Storage Systems division in San Jose, Calif. "I don't know if 'give' is the right word, but we recognize that the whole package has to be priced to compete with the market."

Nonetheless, upgrading "is going to cost more" than expected, said Paul Wolfstaetter, an analyst at Gartner Group, Inc. in Stamford, Conn. Even if IBM is accommodating on

price, "there are a whole bunch of hidden costs" awaiting users, including planning revisions, increased negotiating time and a more disruptive installation and system programming process, he added.

### Not done yet

IBM is not completely ending 3990 Model 6 development, said Steve Marshall, manager of international sales at its Storage Systems division. A feature for copying data to remote systems for disaster recovery purposes is still scheduled to be released in June, he said. The feature was originally supposed to ship last year.

### Rivals at the ready

The lack of a boost for the 3990 Model 6 will leave IBM at a capacity disadvantage, compared with rivals EMC Corp. and Storage Technology Corp., which can put 500G and 400G bytes, respectively, behind their controllers. That may make it harder for IBM to maintain its dwindling market share lead over EMC, said Carl Greiner, an analyst at Meta Group, Inc. in Stamford, Conn.

"Their strategy obviously has got some holes in it, and they're going to have a tough go of it in 1995 as a result," Greiner said. "I don't see Ra-

mac getting a large acceptance in big data centers until they get a stronger controller."

An all-new controller is under development and should be delivered in the first half of 1996, Marshall confirmed. That device, code-named SeaStar, should eliminate the capacity limitation and allow users to create fault-tolerant Ramac

clusters at his shop, he said. "We're reevaluating our RAID decisions now."

IBM has limited its spending on storage development while it tries to improve profits in that area—hence the decision to shift resources away from the 3990

Model 6 to other projects such as SeaStar, Marshall said.

The 3990 Model 6 is nearing the end of its life and would have needed "major modifications" to support more capacity, Wolfstaetter said. On the other hand, SeaStar "would definitely be a leg up" on other mainframe RAID vendors if IBM ships it as planned, he added.

SeaStar's ring-based architecture will let users create

Jekyll and Hyde	
Ramac users will see benefits and drawbacks when IBM ships larger disk drives without enabling its 3990 Model 6 controller to support more capacity	
BENEFITS	DRAWBACKS
4G-byte disk drives will reduce Ramac footprint compared with existing 2G-byte models	Need for second controller to go beyond 180G bytes would add to footprint
Better performance because of faster disk drives and multiple controllers	Adding controllers would require more channels and increase power usage
Higher reliability and fewer components to break down	Storage management complexity may increase

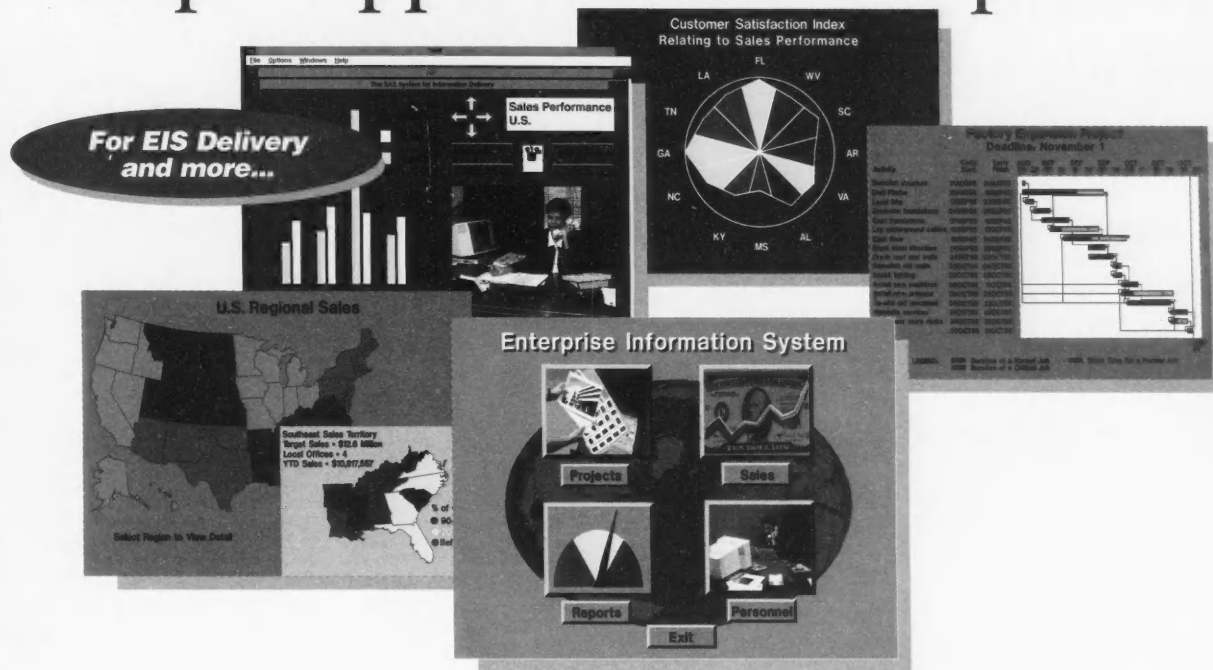
clusters linked by a ring of controllers, sources said.

However, another user, who asked not to be identified, said his storage needs cannot wait for the follow-on controller. The 3990 Model 6 limits are "disappointing" and may make StorageTek's Iceberg 9200 array a more viable short-term op-

tion at his shop, he said. "We're reevaluating our RAID decisions now."

Marshall declined to comment on product details but said expectations for first-half 1996 shipments are "reasonable."

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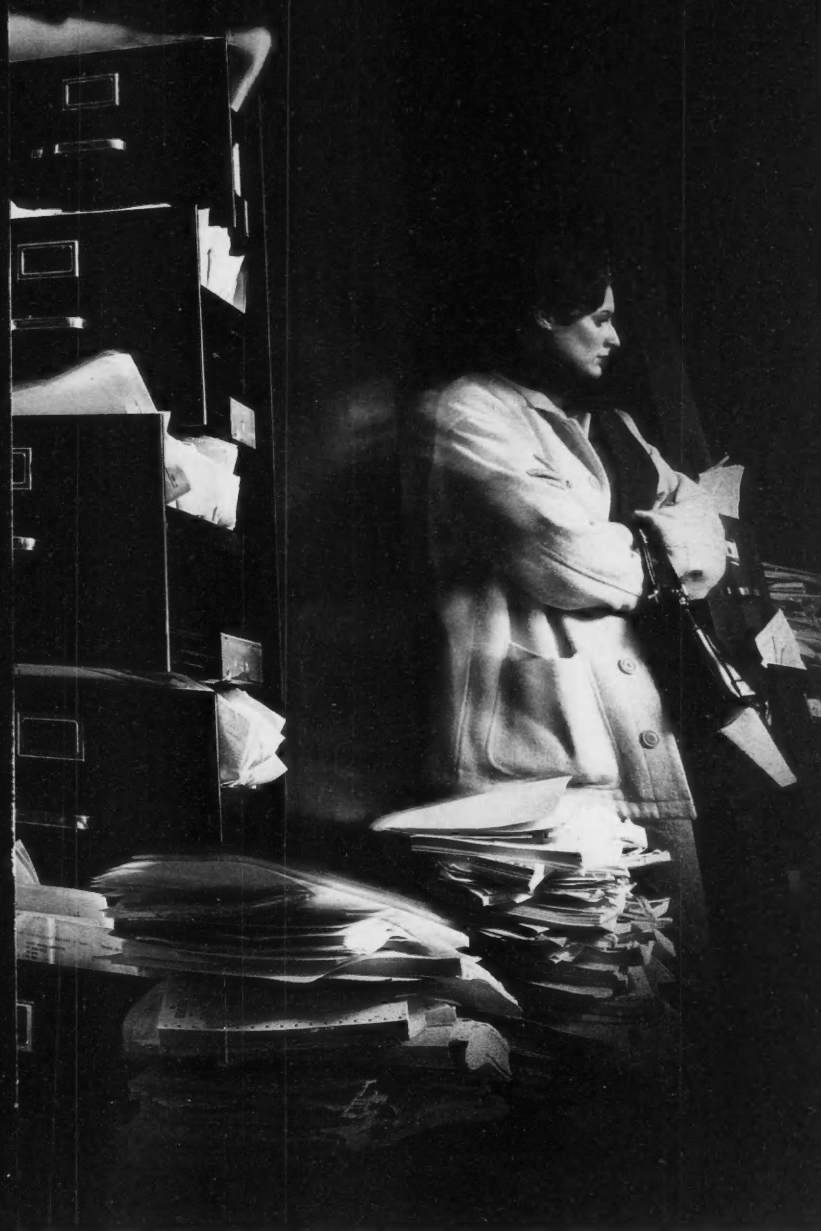


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# Digital simplification effort hits some snags

By Neal Weinberg

Some Digital Equipment Corp. customers, in the midst of upgrading their software licenses, are finding that the company's 4-month-old simplification program is not so simple after all.

In October, as part of an effort to make it easier to do business with the compa-

ny, Digital reduced the number of price tiers for VAX licenses from 22 to three and decreased the number of Alpha tiers from six to three.

"They needed to make it simpler," said Tommy McCall, a software engineer at S.E. Huffman Corp. in Clover, S.C. McCall has not gone through the relicensing process, but he said the tier reduction ap-

peared to be an improvement.

However, for some dealers, it is still not simple enough. While noting that the intent of the simplification plan was a good one, they said the devil is in the details, especially when it comes to customers trading in old VAXs.

"It's very confusing," said Michael Andelman, president of Liocs Corp., a value-

added reseller in Lombard, Ill.

"One of the surprises that keeps getting us in trouble with customers is annual maintenance costs," which have been increased, Andelman said. One customer "squealed like a stuck pig" when quoted a VAX software maintenance price, he added.

"It seems simplified, but it's not that simple," agreed Bill Rosas, president of Worldcom Exchange, Inc. in Salem, N.H. He said the tricky part is administering a 75% upgrade credit that Digital is offering to entice customers to migrate from VAX to Alpha products. Determining the value of an old VAX software license is no easy task, he added.

Greg Casto, who heads the Digital Dealers Association, made a brief presentation describing the new system at December's Digital Equipment Computer Users Society conference. When he finished, a Digital official stood up and told him he had it wrong.

In response, Casto invited Digital representatives to the association's meetings held last week in Irvine, Calif., and coming up on March 9 in Natick, Mass., for further clarification.

Specifically, Casto said he would like to see written procedures from Digital on how to implement the program. He also said he

## Price changes

Under the new pricing plan, some high-end software licenses will cost less, while some low-end licenses will cost more. The price changes range from an increase of \$6,560 to a decrease of \$18,250.

has questions about liability and charge-backs if a mistake is made.

A Digital spokesman said overall the program has been well received. He claimed that users will have lower lifetime software costs because the new system allows free movement of licenses within the three broad systems categories: workgroup, departmental and enterprise.

However, the spokesman acknowledged that the trade-in credit "needs a little bit of explanation." But that is just "a matter of educating people and explaining it a little more," he said.

## Some supporters

Not everyone has been thrown by the new policy. C. D. Smith, owner of C. D. Smith & Associates, Inc., a reseller in New Braunfels, Texas, said the system puts Digital on an even playing field with other firms.

The trade-in credit has accelerated Alpha sales because it makes it more attractive for VAX customers to migrate to Alpha, Smith said. "It makes it more attractive to stay with DEC, and it's helped me get more business," he added.

Dennis Spillane, president of Software Management Associates in Westwood, Mass., said the new system is easy for new customers, but there are still some wrinkles for existing customers.

To get the trade-in credit, they need to physically produce the old license, which is not always easy to do. And they have to make sure the old license is valued correctly.

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# Wireless mobile computing hits Wall Street

By Michael Fitzgerald

The wireless industry got its first integrated, vertically oriented package this week.

Compaq Computer Corp., RAM Mobile Data USA L.P., Wireless Technologies, Inc., Telescan, Inc. and AT&T Corp. have

pulled together to sell the Mobile Financial Workstation. Aimed at investment bankers, the package was designed to give traveling financial types instant, wireless access to stock information through Telescan's on-line stock service. Users can also place orders in real time. Stockbrokers contacted said they had

some interest in the package.

"I hate to carry anything when I'm traveling. But if I am going to carry something, either it's going to be a telephone or something I can do E-mail with and get quotes over," said Jim Hansell, an analyst at UBS Securities, Inc. and formerly an information systems manager at the

company. He said UBS is very likely to look into the pros and cons of Mobile Financial Workstation.

One beta tester said he found the package interesting but said he would not likely be a user.

"I did find a great use for it," said Mark Langley, an equity analyst at Gruntal & Co., a New York

brokerage. Langley said during a break at an analyst meeting he had to stand in line at a small bank of pay phones. "Had I been using this [to type] my notes at the analyst meeting, I could have just gone to a window and zapped all my notes to the office," he said. Still, Langley said he would have

little use for the package, though analysts who travel more might find it useful. He also said he did not like the external floppy drive on Compaq's Contura Aero and that Telescan runs slowly over RAM for larger queries.

Langley said a PCMCIA version of the modem would reduce the package's bulkiness.

"One of the nicest features is that you can just purchase the package, you don't have to piece it together yourself," Langley added.



UBS Securities' Jim Hansell says the firm will consider Mobile Financial Workstation

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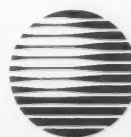
<sup>2</sup>UNIX Leapfrogs in Commercial Availability™ ©1994 D.H. Brown Associates, Inc.

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# 'Tech budget' faces congressional fire

Administration drops R&D tax credit; observers fear other cuts

By Gary H. Anthes  
WASHINGTON

Despite much ado about government downsizing, President Clinton recently sent Congress a budget calling for increases — some in double digits — for programs aimed at developing new computer and communications technologies.

That is the good news for computer users and vendors. The bad news is that the programs may not survive a Republican-led Congress unscathed.

In a budget document accompanying their "Contract with America," Republicans called for a 20% cut in the government's High Performance Computing and Communications program and elimination of the Commerce Department's Advanced Technology Program (see chart). Republicans are generally hostile to federal funding of commercial technology development, saying the government should not be in the business of "picking winners and losers."

"Technology programs are ripe for a big battle with Republicans," said Jon Englund, director of national affairs at the American Electronics Association in Washington. "A lot of what the president wants is going to be cut."

However, some observers argued that Clinton's technology programs are safe because influential Republicans such as House Speaker Newt Gingrich (Ga.) and House Science Committee Chairman Robert Walker (Pa.) are techno-enthusiasts.

But so far, the signs from Capitol Hill have been omi-

nous. At a recent Senate hearing on Commerce Department technology programs, Larry Pressler (R-S.D.), chairman of the Commerce, Science and Transportation Committee said, "I note that no South Dakota firm has ever received a grant from the [Commerce Department] Advanced Technology Program. And none of [its] Manufacturing Technology Centers provide any technical assistance to any company in my state."

## No credit

In a less obtuse piece of bad news for high-technology companies, the White House failed to include in the budget an extension of the research and development tax credit. Clinton campaigned on a promise to make the temporary credit — which has been given several 18-month extensions — a permanent one.

"Basically this means the administration is walking away from the credit," Englund said. "This is a big problem. It sends precisely the wrong signal to the R&D community at a time when R&D budgets are tightening."

said Ken Kay, spokesman for the industry Working Group on Research and Development in Washington.

Meanwhile, high-tech industry spokespeople said they will now ask Congress for another 18-month extension for the credit, worth an estimated \$2.8 billion.

In its budget request, the White House added several

troubled systems projects to its "high-risk" hit list, including the following:

• The Agriculture Department's \$1 billion Infoshare project entered the hall of shame for its failure to complete business requirements analysis before planning hardware purchases.

## High-tech highlights of the president's budget

	FY 1995 budget (estimate)	FY 1996 budget proposal
<b>Multi-agency program</b>		
High-performance computing and communications	\$1.08B	\$1.14B
Government/industry research partnerships	\$5.1B	\$5.81B
<b>Agency program</b>		
National Science Foundation/Computer and information science	\$258M	\$276M
Advanced Research Projects Agency/Technology Reinvestment Project	\$443M	\$500M
National Institute of Standards and Technology/Advanced Technology Program	\$431M	\$491M

Source: U.S. government budget, Office of Management and Budget, Washington



Budget cuts at the House Ways and Means Committee left a pile of unused computers offered up by Rep. Bill Archer

# Big players could squeeze TCP/IP vendors

By Suruchi Mohan

Small vendors of products based on TCP/IP are scrambling to respond as the industry bigwigs start to play in this arena. Although most observers agree that this business will never be the same, many of the small providers seem to be in a state of denial.

IBM has put TCP/IP functionality into its OS/2 Warp and Microsoft Corp. plans to include it in Windows 95.

"Once Windows 95 rolls out, smaller companies will face a challenge," said Tom Nolle, president of CIMI Corp. in Voorhees, N.J. Although IBM's and Microsoft's moves will undoubtedly bring TCP/IP into the limelight, he said, some of the traditional players will have to close shop while others will continue to do well. It is too early in the game "to say who will be who," he said.

TCP/IP market leaders include FTP Software, Inc. in North Andover, Mass., Ipswitch, Inc. in Wakefield, Mass., and Process Software Corp. in Framingham, Mass. The explosion of TCP/IP connections may be attributed in part to the run-

away popularity of the Internet, the spread of Unix and the need to connect heterogeneous platforms (see chart).

## Necessary step

The TCP/IP vendors are, perhaps, paying the price for this great demand. Now that the market has been established, the operating system providers want to give their users the option to connect to the outside world.

Some think this is the way it should be. "IP should be embedded in the operating system," said Steve Rose, vice president of systems services at C&S Networking, an integrator in St. Paul, Minn. "It shouldn't be from a third party."

Rose said IBM and Microsoft's offerings will make his life as an administrator simpler because he will not have to pick up different IP stacks for different products. "It will make my life easier because I won't have to support so many stacks. It eliminates confusion," he said.

But the small TCP/IP providers are not buying this idea. Ipswitch President and Chief Executive Roger Greene acknowledged that bundling TCP/IP software

with operating systems will take a bite out of the market, but he said he is not worried. "TCP/IP is not a commodity. We feel there is a very important segment of the market that is willing to pay extra" for additional functions that his firm provides, including routing and Network File System, he said.

Other executives from small suppliers said they provide more specialized and better support services than Microsoft or IBM can in the TCP/IP arena.

An IBM spokesman disputes that, saying IBM provides 90 days of free support for OS/2 Warp, which includes the TCP/IP component. After that, users can get support for a fee.

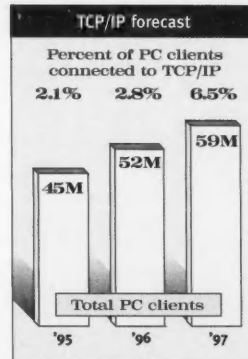
Another extra that smaller vendors provide is compatibility,

they said. Dave Rosenlund, director of marketing at Process, said his company's software works across many platforms, providing users with far more flexibility in heterogeneous environments.

Glenn Williams, engineering manager at Grumman Data Systems in Herndon,

Va., agreed. He said his company would have gone for TCP/IP software from the larger companies such as Microsoft and IBM if their software had been compatible with one another.

"The problem has been getting the software to work," he said, adding that the TCP stack he has from Ipswitch works with both companies' products. Indeed, he said, that may be a big selling point for the small companies.



Source: CIMI Corp., Voorhees, N.J.

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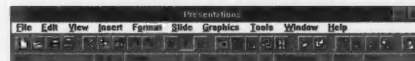


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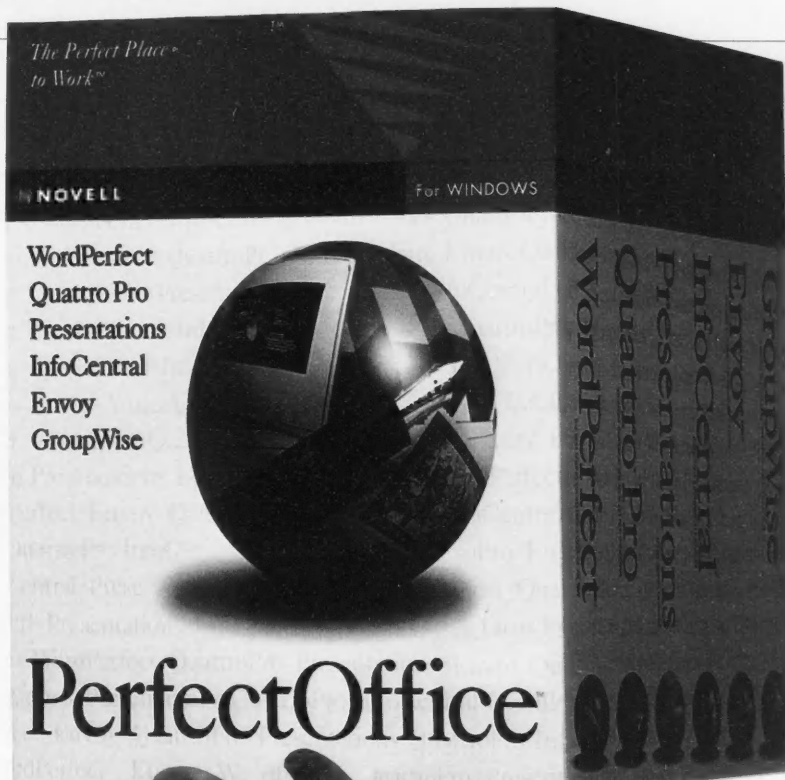
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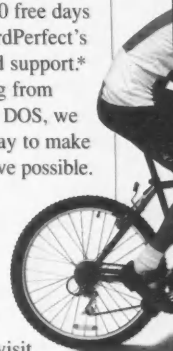
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# Computer Industry

## Briefs

### Kahn backs Starfish

**Borland International, Inc.** founder Philippe Kahn has launched **Starfish Software**, a Santa Cruz, Calif.-based venture that will produce slimware. Starfish bought Sidekick for Windows and Dashboard for Windows from Borland and will use Borland's Delphi product to develop consumer software for Microsoft Corp.'s Windows 95. Borland, which holds a minority stake in Starfish, will disband its Simplify consumer products division.

### Microsoft sued

Touch screen developer **AVI Systems, Inc.** has sued **Microsoft Corp.**, alleging improper use of the AVI trademark to identify Microsoft software and technology that plays audio and video sequences in Windows. The Oakland, Calif., company wants to prohibit the release of Windows 95 with the AVI trademark.

### Televideo posts loss

Video display terminal developer **Televideo Systems, Inc.** reported sales of \$13.2 million and a \$907,000 loss for fiscal 1994 ended Oct. 31, 1994. This compares with \$15.3 million in sales and a \$9.6 million loss in fiscal 1993. The results do not reflect the San Jose, Calif., firm's recent move into multimedia peripherals, which will appear in fiscal 1995 figures.

### SHORT TAKES CompuCom

**Systems, Inc.** has halted negotiations to purchase **Trellis Network Services, Inc.** ... Pauline Lo Alker, president and chief executive officer of **Network Peripherals, Inc.**, has been appointed to the board of directors of **Insignia Solutions, Inc.** ... David Liddle has resigned from **Borland's** board of directors. Liddle, who also serves on **Sybase, Inc.'s** board, resigned due to a conflict created by Sybase's pending acquisition of **Borland rival Powersoft Corp.**

## Visigenic takes less-traveled path

Company shelves V/Forms graphical development tool kit to focus on ODBC

By Kim S. Nash

Two-year-old Visigenic Software, Inc. plans to announce next month that it will exit the crowded client/server development tools market to focus exclusively on Open Database Connectivity (ODBC) drivers for "non-Microsoft platforms," company officials confirmed last week.

In the process, Visigenic has canned V/Forms, a graphical development kit that was supposed to ship 11 months ago, said Mark Hanson, an executive vice president at the San Mateo, Calif.-based company. There are no plans to sell off the technology nor are layoffs planned, he added.

V/Forms initially targeted Informix Software, Inc. database users, who lacked graphical ob-

ject tools. However, Informix has since developed New Era, an object-based development tool intended to appeal to those same users.

In talking with potential corporate and third-party customers about V/Forms, Visigenic saw



**Visigenic founder Roger Sippl will relinquish day-to-day company duties**

"pent-up demand" for ODBC drivers for platforms other than Windows-based systems, Hanson explained.

"We thought [having] all our eggs in the ODBC basket would be less crowded, and we could still accomplish the same amount of revenues and profits" as estimated in Visigenic's original business plan, he said. Hanson declined to specify financial goals.

V/Forms was conceived as a second-generation development tool kit that included ap-

plication partitioning. Release 1.0 was in beta testing at 10 to 20 Informix database sites when it was nixed. Product plans had called for support for Sybase, Inc., Oracle Corp. and other databases [CW, Jan. 17, 1994].

### Conflict of interest?

Visigenic founder Roger Sippl plans to relinquish day-to-day company duties to run for chairman of X/Open Co., a group of vendors aiming to set interoperability standards, a Visigenic spokeswoman said. Sippl will keep his position as chairman of Visigenic, and he will remain the primary investor in the company.

The SQL Access Group, which originally conceived

ODBC, merged with X/Open last December. That means Sippl would lead both X/Open, which now oversees ODBC, and Visigenic, which hopes to make its fortunes from the specification.

### Change of heart

Visigenic signed an exclusive licensing deal with Microsoft last October, giving Visigenic the rights to sell developer's kits for ODBC on Unix and Macintosh systems. By November, Visigenic had decided to stop work on its V/Forms client/server tool and concentrate only on ODBC products.

Hanson maintained that no conflict of interest exists, pointing out that X/Open and SQL Access Group members include many vendors that sell ODBC drivers, including Intersolv, Inc. in Rockville, Md. Intersolv competes with Visigenic in the market for ODBC products that run on Unix and Macintosh systems.

"Roger has to be cautious about using the chairmanship to tell customers that [Visigenic has] some unique edge," said Gary Greenfield, chief operating officer at Intersolv.

### Hiring practices

## Microsoft scrambles to find 'brightest'

By Stuart J. Johnston

To maintain its phenomenal growth rate, even as the curve slows, Microsoft Corp. must continually and aggressively recruit high-quality employees. But to meet its equally ambitious development goals and appropriately staff more enterprise-oriented projects, the Redmond, Wash.-based firm has had to alter its traditional approach of going after young, fresh recruits.

From its earliest days, Microsoft has had a penchant for hiring the best and brightest computer science graduates. These recruits tend to be eager and willing to work long hours — for less than the going rate — in exchange for the opportunity to cash in on the industry's most generous and lucrative stock options.

A few years ago, the average age of a Microsoft employee was well below 30 years old. Today, however, the influx of older workers, combined with the retention of existing employees, has driven that number into the low 30s. This is the result of networking and server-oriented projects, which require experienced people who understand corporate customers' problems with client/server computing.

For example, Jim Allchin, senior vice president of the Business Systems Division, jokes that he single-handedly raised the average age by hiring older personnel for his group, which is responsible for Windows NT and all server products.

Today, Microsoft employs 16,000 people worldwide as well as approximately 3,000 contractors.

### Low turnover

Despite heavy demands on employees, the average turnover rate runs between only 7% and 10% per year, according to Mike Murray, Microsoft's vice president of human resources and administration.

"In a company like that, that's growing like crazy, with all the stress and burnout, that's admirable," said William A. Grady, partner at Boston-area recruiting firm Romac International.

Grady said the practice of hiring recent college graduates is a fairly common and well-tested technique, but companies must

be careful to provide career paths to retain workers as their skills develop.

In fact, Murray said, Microsoft does just that. It provides career paths in both product and technical management and for developers who do not want to move into management in order to advance. Developers who eschew management can advance to "architect," which is roughly the equivalent of a vice presidency, Murray said.

Microsoft has also designed a set of courses that teach management skills and how the company develops software. A course for midlevel managers, taught by senior executives, explains how the company does business internally.

Other factors that help create an effective infrastructure include an extremely flat management organization, the use of semiautonomous product development teams and a heavy reliance on the corporate network for electronic mail as the primary means of communication.



**Mike Murray, Microsoft's vice president of human resources, says turnover has been minimal**

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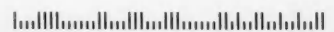
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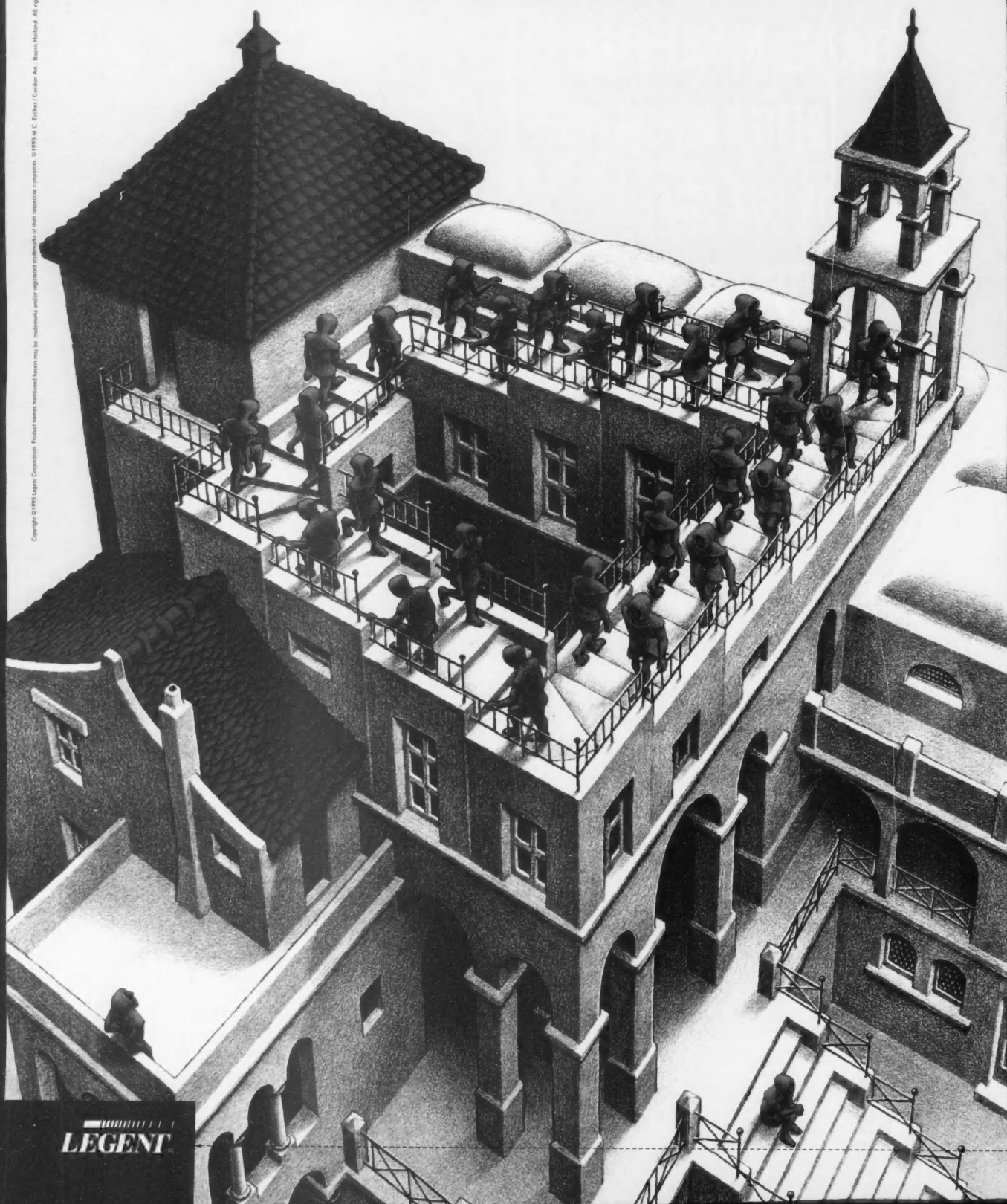


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## A dose of reality

Whenever my head gets too full of 32-bit multimedia operating systems and gigabit networks to the desktop, I like to head out and spend some time with "real people." A couple of weeks ago, I spent time with about 400 of them in Nashville at the Mobius Management Systems User Group meeting.

Real people are what Mobius President Mitch Gross calls "the steak, not the sizzle" of the computer industry. They worry about things such as how to distribute a 100 million-page report every month and then store it so a customer service rep can grab any single page in less than 10 seconds.


Real people buy \$100,000 mainframe report distribution products from companies such as New Rochelle, N.Y.-based Mobius because they can recoup the investment in a single report run. Real people worry if two terabytes of DASD is enough. Real people deal with the legal requirements of being able to retrieve every document a large insurance company has generated for the past 30 years.

The sizzle merchants in the computer industry might call these people tired old mainframe bigots. But the real people at the user group meeting came from the companies that make vendors salivate — Blue Cross/Blue Shield of Illinois, Prudential Insurance, Humana, Arthur Andersen, Kaiser Permanente Health Plan and so on.

The real people at Wachovia Operational Service Corp. in Winston-Salem, N.C., have eliminated a monthly archiving process that used to produce 343,000 pages of microfiche. Now it's all on tape — real savings. A Dallas-based financial services company provides 3,300 customer service reps with six months' worth of statement data for 6 million customers in less than 15 seconds.

I couldn't resist asking these real people about a couple of things the industry thinks are tremendously important right now, such as when the last mainframe in America will be turned off. When asked if they expect to still be running their mainframes in the year 2010, about 390 of the 400 people in the room raised their hand — real people. Yet not a single person would commit to having Microsoft's Windows 95 installed on more than a quarter of their desktops by the end of the year — real answers.

Real people don't buy glitz, they don't beta-test, and they aren't blinded by technology. All they do is manage the data centers that keep businesses running in industries in which 24 hours of downtime means Chapter 11 bankruptcy. The industry should get to know more real people.



Paul Gillin, Editor  
Internet: pgillin@cw.com



## Don't count Cobol experts out yet

I spotted a notice in the Dec. 12, 1994, issue asking employers who are looking for Cobol experts to advertise in your "Cobol Careers" section in the Dec. 19 issue. Finally, I thought, something I can use! So I anxiously scoured the Dec. 19 issue when it arrived and found nothing that even remotely resembled a "Cobol Careers" section. In fact, the closest thing I could find was an encouraging article ["Sweat the small stuff," CW, Dec. 19, 1994] about how Cobol programmers could still find "success in the backwater of corporate maintenance divisions."

I'm glad to know there's still hope for us backward folks who know nothing but mainframe applications. Maybe, with any luck, I can muck my way through this obsolete technology until retirement ... as long as I retire in the year 2001. From what I've read in *Computerworld*, there won't be any work for mainframe programmers after that.

Drop me a line if you decide to start printing articles that have meaning to people who aren't on the bleeding edge of technology.

Kevin Lee  
Greenwood Village, Colo.

## Caution is the rule

In response to "Client/server costs hard to divvy up" [CW, Jan. 23], chargeback systems are an accountant's answer to management's inability to make rational strategic decisions. Widely deployed, chargeback systems generally turn into a free-for-all of in-

ternal departmental profiteering: "The company lost money last year, but my department made a profit!"

More than one company has accounted itself into bankruptcy, fiddling with internal revenue transfers while its market drifted away. Sure, you need to have a pretty good idea what your costs are, but don't let chargeback formulas tell you how to run the company.

Stuart D. Alderman  
Claremont, Calif.

## Secure systems

Regarding "On-line libel: A \$200 million bug" [CW, Jan. 23], operators of computer communications networks must design their systems so users' identities are more positively established and accountability for publications and actions in cyberspace can be positively assured. The design and operation of computer communications systems must assure positive answers to the questions "Is that really you?" and "Did you really say that?"

The anonymity that is provided by computer-based communications must be eliminated. Personal accountability must be the rule in cyberspace as well as in real life. If it takes a few \$200 million lawsuits to get service providers to beef up their network security, so be it.

Dayle L. Collins  
Richmond, Va.

## Internet retailers see some profit

In "Cybershoppers cruise past Internet retailers" [CW, Jan. 23], you missed areas that are successful with Internet retailing. We put our on-line airline reservation and ticketing service on the Internet in early November. By Christmas, we had registered travel profiles and credit-card numbers from users in all states and more than 50 countries. Our current projections for Internet sales are to be at a \$20 million annual rate by year's end.

Our service enables consumers to access air travel information and acquire tickets at any time without paying fees. By putting the consumer in charge of an interactive process, there is an added value to the Internet.

While cybershoppers are cruising past most cybermalls, they are stopping elsewhere and spending money — in our case, hundreds of dollars per purchase.

David Lea  
PC Travel  
Raleigh, N.C.



■ Computerworld welcomes comments from its readers. Letters may be edited and should be addressed to Bill Laberis, Editor in Chief, Computerworld, P.O. Box 9171, 375 Cochituate Road, Framingham, Mass. 01701. Fax number: (508) 875-8931; Internet: letters@cw.com. Please include an address and phone number for verification.

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## Viewpoint

# IS execs as power brokers

Gary Heil and Tom Parker

Whether you work at a Fortune 500 company or a corner store, timely, pertinent information is the high-octane fuel of business. So it is only logical that the people who design the systems that provide that

information have the power to alter the course of the organization.

A virtual no-brainer — or is it? As is the case with any change, tampering with the flow of information in the organization inevitably meets with resistance from those who have a vested interest in maintaining the status quo. It is understandable, then, that many attempts to alter the availability and improve the quality of information fall victim to the need of those in control to hold on to the past.

Fortunately for information systems designers, our time is coming. The customer demand for greater value, combined with the information technology capable of providing that value, is bringing about a massive organizational change that nearly a century of management theory has been unable to accomplish. In the past, the power to delight customers — or not delight them, as was usually the case — emanated from the top of the organization in the

form of "company policy." Now, thanks to the ready access to information by workers at all levels, that power is spread throughout the organization and ultimately to customers themselves.

Customer-specific databases and flexible manufacturing capabilities are no longer the future. Custom-printed greeting cards, made-to-measure jeans and design-

your-own credit cards and pagers are yesterday's news. Tomorrow it will be custom sneakers while you wait, gene-specific drugs and maybe even a guaranteed nonsmoking room in a hotel. After decades of one-size-fits-all products and services, IS designers are rapidly making possible an era of one-size-fits-one.

In this "customized" environment, every worker will have to be able to read and analyze data about a specific customer, understand the value of that customer to the organization, recognize the peculiarities of the customer's situation and interpret this data in



Heil

He will become a systems architect and an increasingly important member of our organizations. Of course, responsibility for technology design will be front and center, but the more subtle roles may become even more important. We will be creating practices and methods that necessitate a very different workplace.

Different kinds of management approaches that encourage and support more responsible and better educated workers — ones who do what they think, not just what they're told — will also be required. Indeed, as information technology is used to help fulfill the organization's destiny, the nature of all our work will change. And the information technologist will be the change agent who guides the way.

Heil, Parker and Rick Tate are authors of *Leadership and the Customer Revolution*, Van Nostrand Reinhold, 1994.

# Time to sharpen the data saw

Max D. Hopper

The specter of entropy casts a dark shadow over the efficient flow of information that IS managers have labored to achieve. It's an issue we don't talk much about. In fact, the remedy involves a chore so extensive we don't like to think about it and so expensive we're reluctant to try to sell it to senior management.

Yet in most companies, it's time to sharpen the saw of enterprise data management. How we respond to this challenge will profoundly affect the quality and reliability of our corporate information, as well as the speed and cost-efficiency with which our systems can deliver the answers we need.

It's time to reexamine the very fabric of our companies' business information — the data elements from which it is derived. That involves revising the enterprise data dictionary to establish a unique one-to-one correspondence between the term we use to describe a data element and the meaning, related to a key attribute of our business, that we ascribe to it.

Over time, the data elements in our systems have proliferated as their meanings have evolved and mutated. That's a consequence of their manipulation and interpretation by various developers and users throughout the organization. Rather than use an existing data element as defined elsewhere in the system, these people create or derive new data ele-

ments to suit their immediate needs in a given application. By enriching the data vocabulary with synonyms, multiple meanings and conflicting and overlapping definitions, they have at least degraded overall operational performance. In the worst case, ill-defined data can even compromise information quality and result in disastrous business decisions.

We can continue to resolve these inconsistencies with Band-Aids, but the real solution is radical surgery — we need to clean up our vocabulary. If companies are to reap the full benefits of re-engineering, a key aspect of the process will be implementing corporate data standards, with a redefined and greatly reduced set of data elements.

This is no easy task, nor is it one we can ever really complete. Yet those companies that have made a solid effort to weed their data dictionaries have typically been able to reduce the number of unique data elements in their system from thousands to hundreds. Development time for new applications is greatly reduced. Data translation devices and steps are eliminated, reducing equipment costs and pro-

cessing times and enhancing information reliability. Postponing this effort will lead to increased overall costs and limit our ability to take advantage of object-oriented techniques.

Having attempted, with some success, to overhaul the corporate data dictionary in two companies, I realize both the enormity of this undertaking and the difficulty in securing the support of senior management and the user groups involved. The value to the company and the benefits to any given user are not as immediate as those of other projects that compete for our time and money.

So when I heard recently that two major companies, both acknowledged leaders in IS, have committed resources to this farsighted task, I was motivated to use this column to applaud their strategic vision. Perhaps the awareness that some companies at the cutting edge of IS are honing their data dictionaries will inspire others to sharpen their saws.

Hopper, former chairman of AMR Corp.'s The Sabre Group, is now principal of the Max D. Hopper Associates consultancy in Dallas.



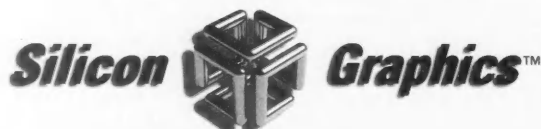
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# Desktop Computing

## IBM, Motorola launch new PowerPCs

### Low-power, high-performance 603E released

By Jaikumar Vijayan

■ The near total lack of desktop systems based on PowerPC chips — apart from those by Apple Computer, Inc. — has not stopped IBM and Motorola, Inc. from announcing new PowerPC processors.

Last week, both companies released the 100-MHz PowerPC 603E, a low-power, souped-up, higher-performance version of its predecessor, the PowerPC 603.

The processor, which is being aimed mainly at the notebook and portable markets, is also expected to appear in corporate desktop systems from Apple and Firepower Systems, Inc.

IBM has indicated it will use the 603E in its long-promised PowerPC-based desktops and notebooks, which are scheduled to arrive in the second half of this year. In the past, IBM has maintained that it will wait for its OS/2 for the PowerPC to materialize before announcing

desktops based on the chip.

At 98 sq. mm., the 603E is slightly larger than the 603 because of on-chip 16K-byte instruction and 16K-byte data caches. According to IBM, typical power dissipation of the 603E is just 3 watts, making it ideal for notebooks, subnotebooks, laptop computers and energy-efficient desktops.

### Better pricing

For users, the chip could mean PowerPC-based desktops that retail for roughly \$2,500 and energy-efficient portables that cost around \$4,000, analysts said.

"It clearly seems to offer better price/performance over the 603," said Linley Gwennap, editor of the "Microprocessor Report" in Sebastopol, Calif.

Otherwise, in most functions, features and capabilities, the 603E mirrors the original PowerPC 601 processor and does not offer greater functionality except in terms of its low cost, power consumption and speed increase from 80

MHz to 100 MHz.

"The announcement of the 603E could signal the fading out of the 601," Gwennap said.

The doubled on-chip cache of the 603E could also mean better x86 emulation

comb Metals, Inc. in Bensalem, Pa.

But it will take more than a performance boost to induce users to buy PowerPC-based systems, he said.

"Prices have to come down," said Crawford, who recently purchased Intel Corp. i486-based systems at half the price he paid for previous-generation 386 systems a few years ago.

"So unless there is a very specific need for the kind of increased performance [the new PowerPC chip offers], we won't buy" until prices come down, he said.

Other users agreed that price was an important consideration.

"If the performance [boost] is available at a reasonable cost, we wouldn't mind buying systems based on the product," said Charles Griffith, MIS coordinator at Albany Junior High School in New York. Otherwise, the purchase will be put off until the next-generation PowerPC 604 is announced, he said.

### Key features of the 100-MHz PowerPC 603E

**3W typical power dissipation:** Optimized for portables; extends battery life, reduces heat.

**8.40mm x 11.67mm die size:** Slightly larger than its predecessor.

**On-chip 16K-byte instruction and data caches:** Twice the size of the original; results in higher performance.

**3.3V power supply:** Energy savings.

and multimedia capabilities, said Dean McCarron, an analyst at Mercury Research, Inc. in Scottsdale, Ariz.

The potential availability of systems based on this and other PowerPC chips — particularly from IBM — has piqued the interest of users such as Frank Crawford, chief information officer at Edg-

### End-user training

## Lotus tool puts a twist on teaching

By William Brandel

Any information systems organization knows the frustrations of having to answer the same questions over and over and the mundanity of training end user after end user to do (or not do) the same tasks on the system.

Lotus Development Corp. has an upgraded product with the potential to eliminate some of these problems. Lotus is

preparing to deliver ScreenCam for Windows 2.0, which includes a number of practical improvements over the software's previous rendition (see box).

ScreenCam is a PC-based multimedia tool that records keystrokes and what is graphically presented on the screen. The recorded "movie" can run on its own, or the user can move through it interactively using

### ScreenCam improvements

- Data compression of up to 90% of file size
- No audio/speaker requirement
- Audio can be edited separately from video
- Enhanced OLE capabilities

ing a mouse or keystrokes.

Because ScreenCam 2.0 requires fewer resources than the earlier version and eliminates the need for additional multimedia equipment, the product may break out beyond its niche status, said David Yockelson, program director at Meta Group, Inc., a consultancy in Stamford, Conn.

ScreenCam no longer requires speakers or soundboards in the PC to run the movie clip. Users can now write subtitled scripts that can run in lieu of the audio portion of the movie.

Lotus, page 76

## HP's OmniBook 4000 hits with price

By Jeffrey Gordon Angus

Hewlett-Packard Co.'s latest color offering, the OmniBook 4000, is a full-size notebook with features comparable to IBM's ThinkPad, but it is priced significantly lower.

Most notable are an impressive active-matrix color display and a strong warranty. The system includes 8M bytes of RAM, a 50-MHz 486 processor and a 520M-byte hard drive. It lists for \$5,670, with an estimated street price of \$5,249. The same configuration with a 100-MHz 486 CPU lists for \$6,510, with an estimated street price of \$6,099.

### Vibrant colors

The OmniBook's 10.4-in diagonal, thin-film transistor, active-matrix color display not only serves up wonderfully rich colors from a range of viewing angles, but it also offers screen update speed comparable to or better than the best desktop displays.

HP includes unlimited toll-free support. In the first year of the three-year worldwide warranty, HP offers a feature called Express Exchange, which means the com-

pany will deliver to you a replacement component by 10:30 a.m. the next business day. Unless you buy a special extension (HP Support Pack), the final two years of the warranty involve returning the part to HP for repair.

The OmniBook 4000 line also includes 16-bit SoundBlaster-compatible audio, a built-in microphone, a keyboard trackball, an infrared port for a cable-free network connection and external ports for hooking up the keyboard, mouse or display. You can also add PCMCIA

cards: a Type III card or a pair of Type II cards.

OmniBook's keyboard and display are very good, so it is unlikely you will want to add to them. However, most users will need a better pointing device than the OmniBook's built-in trackball and should use the machine's mouse port to add one. The trackball's motion and action are fluid, but its location will slow down nine out of 10 users.

The trackball is located at the center of the keyboard's bottom edge and seems to have been made so as not to inconvenience left-

**OmniBook 4000**  
Hewlett-Packard Co.  
Palo Alto, Calif.  
(800) 443-1254

► HP's first full-size notebook PC, the OmniBook 4000, has a strong chance of being a contender in an intensely competitive market due to HP's success with subnotebooks and the vendor's reputation.

► The machine does not open any new technological territory. Its chief strengths are a high-quality screen and an exceptional warranty. It is also priced lower than IBM ThinkPad notebooks that offer comparable features.

handed folks, but that was done at the cost of making it less convenient for right-handed users.

The machine is light — less than 8 pounds with the hard drive — compared with other machines in its class. The workmanship seems better than average, although some of the doors that cover the external ports can come off in your hand when you try to open them. You then have to snap them back in with a little finesse.

In work situations, the 50-MHz processor on the system we tested

OmniBook, page 76



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# Unix



## the Client/Server Advantage

**T**he demand for Unix systems and software is skyrocketing. Today, more business software runs on Unix than any other operating system. Why? Because Unix is the one platform that merges the key benefits businesses need from their computing environments: power, scalability, expandability, and distributed computing capabilities. In a word, it delivers flexibility.

Unix is an open environment; able to run on virtually any type of computer because it can run on many processors, including SPARC, Intel, and Motorola. Unix works with both legacy and new technologies. It also offers power, multitasking, multiprocessing, and multithreading capabilities for fast system response times. With more than 25 years of development and refinement, Unix offers the reliability, availability, and security features users and system administrators require. And because it allows for distributed computing, Unix has become the foundation for client/server computing, a new paradigm that gives businesses the flexibility to quickly develop and deploy new applications, and move information and computing

power to exactly where it's needed.

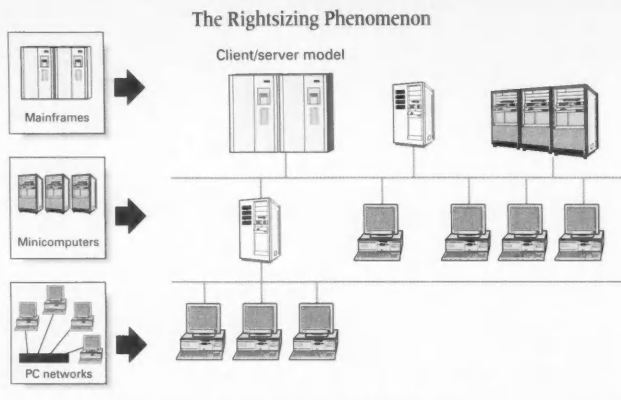
These factors, combined with increasing price/performance, have made Unix the key enabling technology for business process reengineering (BPR) or rightsizing. Unix allows organizations to build an enterprise information system that fits the company's business practices rather than the other way around. By implementing Unix-based technologies on an enterprise-wide scale, businesses can give users faster access to more information while lowering operations costs.

### ***Relying on Unix for Business-Critical Applications***

With millions of business users around the world, Unix has clearly proven its power and reliability. Business-critical applications are especially well-suited to Unix because they're network-dependent.

Unix was built for mixed-vendor networking, and allows businesses to tie together their vast computing resources, integrating the personal productivity applications of PCs with corporate data center applications and other massive computing concentrations.

In recent years, Unix system vendors have worked



### Unix & the Client/Server Advantage

*continued*

to make Unix an even more appealing environment for business-critical computing.

Sun Microsystems, for example, has been an active participant in a number of key standards organizations charged with creating consistent, permanent standards for Unix system interoperability, portability, and manageability.

Sun has also focused on streamlining support for customers with heterogeneous environments — inherent to all vendors of open systems — to eliminate the need to coordinate with multiple vendors. Sun's strong partnership approach with third-party hardware, software, and networking suppliers allows customers to maintain multiple supplier relationships through one vendor.

Many companies around the world have seen the advantages of Unix for business-critical applications first-hand. At GM Hughes Electronics' Space and Communications Company, Chief IT Technologist, Steve Hagerth, views client/server technology as a way to connect business processes and leverage the information flow through the organization. "Part of our goal in using Unix-based systems is to treat our business as an integrated process, and to look for ways that IT can support that process." Hughes Space and Communications has embarked on an ambitious plan to connect its marketing, engineering, and manufacturing processes through the use of client/server business solutions. Their implementation efforts include a Product Data Management system for managing engineering data, including CAD drawings, while maintaining tight control of spacecraft configurations. They are also implementing new client/server systems for proposal development and manufacturing requirements planning.

In the past, GM Hughes used a variety of incompatible systems for each aspect of its business, which sometimes meant the company couldn't access available informa-

tion. The company's new client/server architecture integrates this information, and is driving key decision-support systems that have already improved the company's bottom line.

Hagerth adds, "Sun's support for key standards like X.11 and DCE made their platforms much more attrac-

tive to us, because we want all of our systems to interoperate. Support for open systems, and meaningful standards, is one of the things we like best about Sun's approach to system development."

In an age where the fast, seamless, and secure flow of information to individuals and organizations outside the company has become almost as critical as business applications, Internet access is now a key consideration. And many Internet access providers, both large and small, have found that Sun offers a strong mix of Internet client services and the ability to handle numerous user connections.

As Smoot Carl-Mitchell, President of Zilker Internet Park, an Internet access provider in Austin, Texas puts it: "We had lots of choices for our server platform. Nothing else compares to Sun for the combination of value and reliability that lets us deliver the services our customers expect at a price they can afford." And as its business has grown, Zilker's Sun platform has grown with it, easily accommodating more connections, processing power, and disk space.

Today, 56% of all Internet servers around the world are Sun systems. Even other computer vendors, such as Apple Computer, use Sun hardware to provide access to their own Internet home pages and FTP volumes.

### Making the Move: Data Center to Client/Server

Unix computers now have the raw horsepower to enable peer-to-peer communication between clients and servers so that it is now technologically feasible for each to communicate an equal amount of data to one another. The master/slave relationship of mainframes to clients can now be replaced by an environment where servers can manage shared data and expensive peripherals, and clients can manage individual data and inexpensive, personal peripherals. This dramatically reduces costs and increases efficiency compared to mainframe environments.

And with the growing acceptance of rightsizing as a paradigm, we are already seeing the influx of high-quality applications that are specifically designed to take advan-

tage of distributed environments.

Many companies have increased competitiveness and customer service while simultaneously cutting costs through client/server computing. Sun itself is perhaps one of the best examples.

In the late 1980s, Sun ran most of its core business operations on mainframes. The mainframes became overloaded as a result of the company's rapid growth, and Sun's CIO recommended purchasing more mainframes. Scott McNealy, Sun's chairman and CEO, objected strongly. It made no sense to him that Sun should purchase equipment from other vendors to run its business when it sold the industry's most powerful server hardware. In 1989, he drew the proverbial line in the sand, saying "Read my lips. No new mainframes."

Over the past five years, the transition from the mainframe-dominated data center to client/server computing has occurred. And integrating new Unix applications with existing mainframe systems seems to have improved business. For starters, Sun has realized savings of about \$2 million per year by avoiding mainframe hardware and software maintenance upgrades. Overall system response time has improved for users because Sun's computers are being used for the tasks they handle best rather than whatever task is at hand. Sun's inventory turns have reached 10 per year since the migration, and the average quote-to-collect time has dropped to 100 days from 257 days.

Moreover, Sun has learned a great deal through its own rightsizing effort — not only about optimizing the technologies and methodologies for making the move to client/server computing, but also about the real-world challenges rightsizing presents for customers.

Many kinds of companies are realizing the benefits of client/server computing. Interactive Transaction Partners (ITP), a new partnership between EDS, France Telecom, and U S WEST, devoted to the delivery of interactive transaction services to financial institutions, retailers, and billing service companies, is moving transaction data from a Tandem mainframe to a Sun-based client/server platform.

EDS supports over 8,000 ATM systems, over 500 banks that handle transactions for smaller banks, and thousands of branch banking facilities nationwide. ITP has built

in connectivity to those systems. Dan Twing, Director of Product Management for ITP, said that ITP wanted to store 18 months of transactions online so the company could handle customer queries any time. "We needed an affordable system with large capacity, excellent transaction-handling capabilities, and strong communications capabilities. For us, Sun's client/server solution has been an excellent choice."

LDDS Communications, Inc., the fourth-largest long distance carrier in the United States, is another sizable organization with a major data center application. In addition to running its billing and logging operations on three Sun SPARCcenter 2000 servers, LDDS also runs a proprietary fraud prevention and analysis application on two or more SPARCcenter 2000 servers. This application monitors incoming calls in real time, including both calling-card-based and operator-assisted calls, analyzing them for potential fraud.

Terry Nelms, Manager of Systems Integrity for LDDS, explains why this application is critical to the company. "We process tens of thousands of calls per minute and have kept our fraud-related costs to one of the industry's lowest. Left unchecked, fraud could have cost the company tens to hundreds of thousands of dollars every hour."

#### Summary

While the benefits of Unix for client/server computing and rightsizing applications can be enormous, the transition process from legacy environments can be complex and challenging.

For Sun and its customers, the real value of client/server technology comes from linking people, data, and processes together to create a smooth flow of information. Unix, designed for power, scalability, and distributability, provides the ideal foundation for enterprise-wide client/server computing. And Sun offers a unique combination of real-world, hands-on knowledge, and leading-edge technology that enables organizations of any size to build and optimize a client/server environment.

We hope this and the other accompanying articles will provide you with fresh insights, information, and advice for successfully migrating and managing systems on an enterprise network, and integrating PCs into enterprise client/server environments. ♦

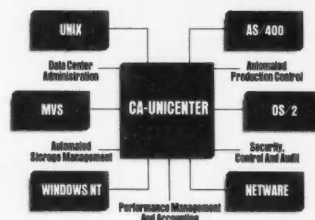
*Many other companies,  
large and small, and in a  
broad spectrum of industries,  
are realizing the benefits  
of client/server computing.*

# Presenting The 7 Of Systems Mana

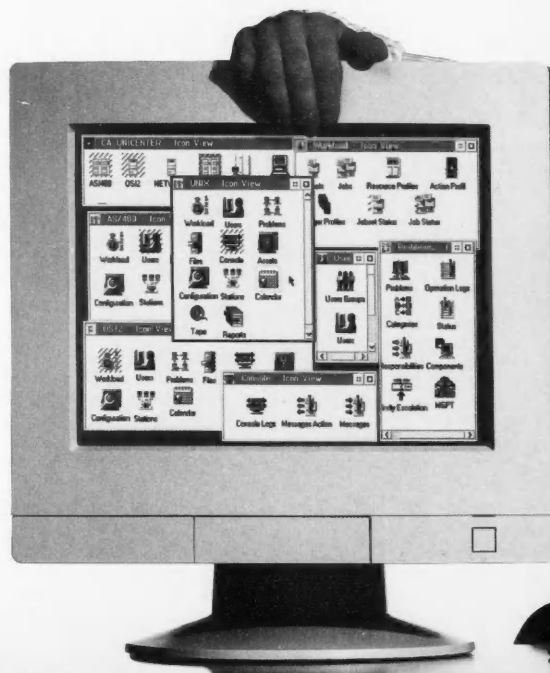


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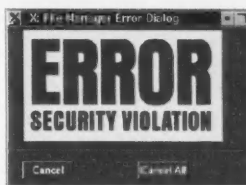


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BY SCOTT McNEALY

## A New Support Paradigm For the Enterprise Customer

**T**he ongoing revolution in networking, and open, client/server systems, is making enterprise-wide computing environments more powerful, functional, and diverse than ever before. The good news is that networked open systems deliver more capabilities to the user than did the old, single-vendor proprietary computing paradigm. The bad news is that heterogeneous networks place a whole new set of demands on those responsible for implementation and support.



SCOTT McNEALY

Enterprise-wide networks are often a patchwork of client/server systems, PC LANs, older mainframes and minis, assorted third-party peripherals, and software. The new support paradigm embraces this heterogeneity and addresses three key expertise-related requirements: technology expertise, service partnerships, and problem ownership.

### *Technology Expertise*

Core technology expertise is central to the new support paradigm. Sun Microsystems is one of the founders of open computing and is

fully committed to it — one hundred percent of Sun's revenues comes from open, Unix computing as compared to less than 40 percent of revenues for leading competitors. Sun is also the largest supporter of open, Unix client/server computing, with more than 500,000 systems supported. The company's open systems experts span the project life cycle, from IT consultants who help minimize downstream risk, to program managers who deliver complex integration products on time, and within budget, to system support engineers who provide open system support, to operations professionals who ensure a smooth and efficient running operation.

Customers recognize Sun's leadership in open, client/server support, and as a result, Sun is the world's leading Unix client/server education organization, training more than 50,000 students annually.

### *Partnership Expertise*

In today's heterogeneous enterprise-wide networks, no one vendor has all the expertise. Instead, the primary support provider must work in concert with other vendors to solve a customer's problem. Service partnerships with other vendors are essential. Sun is one of the industry's leaders in the use of partnerships and alliances to deliver products and comprehensive service. Today, Sun has more than 17,500 service employees and service partners who solve complex customer problems in heterogeneous multivendor environments.

### *Problem Ownership Expertise*

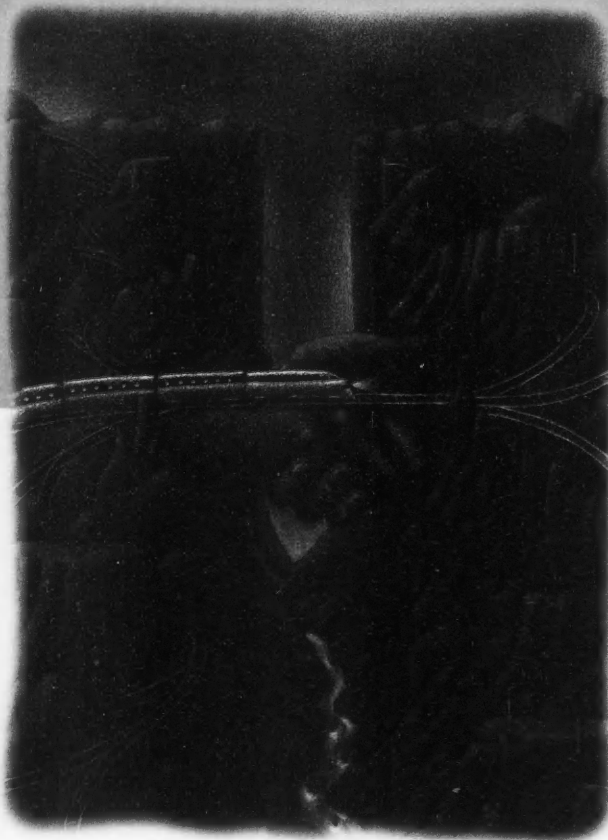
The final and critical component of the new support paradigm is the ability to assume ownership of the customer's problem. In developing solutions, Sun accepts this responsibility, providing program management which takes ownership for the platform including hardware, software, and middleware.

In system support, the SunSpectrum Platinum and Gold programs, for instance, offer 24-by-7 telephone support, on-site assistance and Personal "Ambassadors" dedicated to specific customer accounts. In these accounts, Sun works closely with other vendors to take ownership of problems, avoiding the finger-pointing that often plagues heterogeneous installations.

As corporate computing becomes increasingly heterogeneous, Sun will continue to invest in technology, partnerships, and problem ownership to ensure that our enterprise customers get nothing but the best in expertise and support.

Scott McNealy is chairman and CEO of Sun Microsystems, Inc. ♦

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# Creating Competitive Advantage Through IT Architecture

**I**nformation is opportunity. When the right information is available to the right person at the right time, your business wins. The challenge is to deliver as many wins as possible, as soon as possible, while controlling the cost of information technology (IT). The problem is that IS professionals are working with a moving target: factors such as globalization and competition are constantly changing the business environment, and business managers' ideas about how to cope, change accordingly. Adding to the challenge, technology itself is in a continual state of flux.

How can you respond to rapid change efficiently and effectively to rack up wins without racking up huge bills or disrupting business operations? Maximum flexibility and responsiveness can only be achieved by

adhering to a well-defined architectural framework.

**IT architecture is the ultimate weapon in controlling cost and responding to change.**

Sun Microsystems has developed an effective, practical framework for defining corporate

IT architecture within the client/server world based on Sun's experience helping forward-thinking companies migrate to open, distributed computing. It's also the framework that Sun itself has used to make its own internal migration to a Unix-based client/server network environment.

## Rules for IT Architecture

Like an earthquake-proof building, IT must accommodate movement without sacrificing structural integrity.

IT architecture is supported by five essential "pillars":

- **Network.** The physical and logical infrastructure that supports the distribution and processing of data throughout the enterprise.
- **Data.** The raw content upon whose integrity and availability effective corporate computing depends.
- **Applications.** The means by which users gain access to data so that speed, quality, and cost-effectiveness are optimized.
- **Development.** The discipline under which applications are designed and implemented for maximum return-on-investment.

• **Middleware.** The toolset that ensures component technologies are both interoperable and independent, enabling fully modular, and therefore highly adaptive, IT architecture.

For these pillars to support business processes, they must rest on an unshakable foundation of open industry standards coupled with the organization's own architectural IT framework. In this way a tremor in one section will not adversely affect the entire structure. Architectural standards protect investments, increase productivity, and enhance manageability — even in the face of complexity. Simply put, IT architecture is the ultimate weapon in controlling cost and responding to change.

## The IT Blueprint

The rightsizing successes Sun has produced, both internally and for global customers, has led to the development of the following guidelines for maximizing the value of the IT infrastructure:

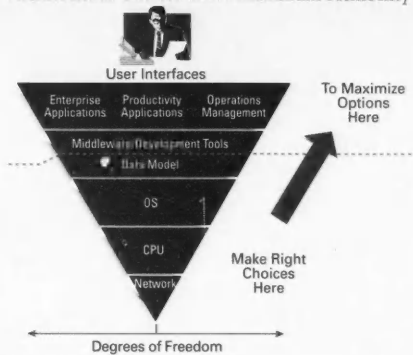
## Network Architecture

For high accessibility and true location independence, the network must act as a single, seamless processing resource. The wide range of services required on the network — applications support, messaging, remote and mobile access, Internet access, multimedia, etc. — place a tremendous burden on the computing infrastructure and those who manage it. Yet, IT budgets dictate that administrative costs not scale up with size and complexity.

To cope with this burden, strict standards for the enterprise network must be defined. What's more, by implementing specific standards at the network level, greater flexibility is available at the middleware and application level. (See Figure.)

A well-thought-out transition strategy also ensures a successful migration to next-generation technologies: ATM, integrated voice/data/video, IETF-compliant routers, and virtual IP network services. IT professionals need to build partnerships with vendors who possess both technical depth and real-world experience to develop an effective game plan for this transition.

## Architectural Choices Drive Maximum Flexibility



### Data Architecture

Traditional data modeling often slows down the development process because the model is tied to, and dependent on, a particular application and therefore also becomes susceptible to obsolescence. A more strategic alternative is to use a data modeling methodology that creates enterprise data repositories based on consistent, standardized data types. While some transactional data may remain application-specific, unique global identifiers for customers and products should apply across all applications, enabling consistent and accurate roll-ups. Such standardization also enhances manageability and scalability.

### Application Architecture

Though a two-tiered client/server architecture is an improvement over the previous mainframe-centric model, it is still limited. For maximum flexibility and rapid adaptation to changing business conditions, companies must begin standardizing on a three-tier architecture that fully decouples data, business logic, and the user interface.

A standard means for applications to communicate with each other must also be developed. Writing unique links between each and every application on the network creates a tremendous maintenance burden and seriously limits extensibility. The solution: a robust "publish-and-subscribe" architecture. Recently endorsed by Sun CEO Scott McNealy, this kind of model enables self-describing objects to be shared freely among applications, without juggling a multiplicity of vendor-specific APIs. It creates a scalable, flexible, and highly manageable environment for

inter-application communications that enables more rapid development and deployment. The result is an "application highway" that allows for seamless communication between business processes without burdensome programming and data formatting tasks.

### Development Architecture

In order to ensure that the real needs of business users are being met, the traditional "waterfall" approach to software development should be abandoned and replaced with time-compressed, iterative techniques. Sun's Rapid Application Development and Deployment (RADDD) methodology brings end users and process owners into the cross-functional team, allowing all stakeholders to pro-actively communicate with each other. This approach allows changes to be incorporated in real time, instead of forcing developers to start over each time a modification is required. Incorporating end-user stakeholders into the process is also a key factor in the effectiveness of any IT solution.

### Middleware Architecture

Middleware is an indispensable set of software components layered between applications, operating systems, and network transports. Transparent, cross-platform processing depends on the effective use of middleware products to enable communications across the application

highway. Middleware components include directory services, message-passing mechanisms, distributed transaction processing monitors, object request brokers, and remote procedure call (RPC) services. By implementing the right mid-

### Beyond Paper Guidelines

Simply defining architectural requirements in a manual won't accomplish the mission ahead for IT. It's people and practices that make standards realities.

This is especially true as IT responsibilities are dispersed and distributed. Sun's experience in rightsizing also shows that, in addition to training on tools and technologies, it is essential for IT organizations to learn the additional architectural, project management, and team interaction skills that make or break the transition process.

By partnering with Sun, corporate IT managers can expedite this critical transfer of expertise, while satisfying immediate needs for technical services and support.

The benefits of building an open, flexible IT architecture are worth the investment. As Sun has proven time and again, with appropriate technical standardization, disciplined operations and an empowered staff, IT can deliver better solutions, faster. And that means bigger wins at less cost. ♦

**C**ompanies must begin standardizing on a three-tier architecture that fully decouples data, business logic, and the user interface.

BY EDWARD ZANDER

# Integrating PCs Into the Enterprise:

## TIPS FOR EXECUTIVES

**O**nly a short time ago, two different worlds of computing existed: the desktop PC and the enterprise network. Today, people are demanding the best of both worlds.

Sun Microsystems has been a leader in integrating PCs into open, client/server environments for many years. Here's a quick checklist to consider when determining the best way to integrate PCs into the enterprise.



EDWARD ZANDER

### ***Avoid Either/Or Decisions***

You should never have to choose between legacy systems and new tech-

nology as you integrate PCs into the enterprise. Technology can connect virtually any standalone PC or PC LAN into enterprise networks without losing functionality. New and existing Sun products enable PCs to seamlessly integrate from mixed environments — such as NetWare, Lan

Manager, AppleTalk, and TCP/IP — into the enterprise.

You also shouldn't have to bet your business on a single LAN protocol. Vendors that adhere to industry standards allow users to keep their options open. For example, Sun's SolarNet family of PC networking products for connectivity, integration, and administration, supports both clients and servers — regardless of the communications protocols — in order to avoid switching when integrating PCs with the enterprise network. The protocol-independence of SolarNet products means PC users can integrate into a powerful new array of network resources and services without changing the way they work.

### ***Make Sure the New Environment is Manageable***

Conventional wisdom holds that technology gets less expensive every year. The reality is that while the cost of hardware usually decreases, the total cost of administration and management increases. Make sure that the LAN integration solution you implement offers effective, cost-efficient administration and management tools. A few questions to consider when weighing your options:

- How easy is installation and configuration of networking software for PC clients?

- What does the solution offer to simplify the tasks of adding, changing, deleting, or relocating user data?

- Is there an easy, efficient way to configure users or groups of users to share file systems and printers?

- Can you manage decentralized PCs and resources from a central site?

Sun's approach offers an integrated set of administration and management tools: a data repository for configuration information; a communications pipeline between TCP/IP and Windows clients and the administrative functions; network protocols that deliver configuration information from the workgroup server to PC clients; mechanisms for sharing network resources across the enterprise; and easy-to-use network management tools that allow heterogeneous systems to be monitored.

### ***Insist on a Scalable, Distributable Solution***

Clearly, the backbone operating environment in an enterprise network has to be powerful enough to accommodate multiple users performing multiple tasks concurrently. But as an organization grows, and more PCs

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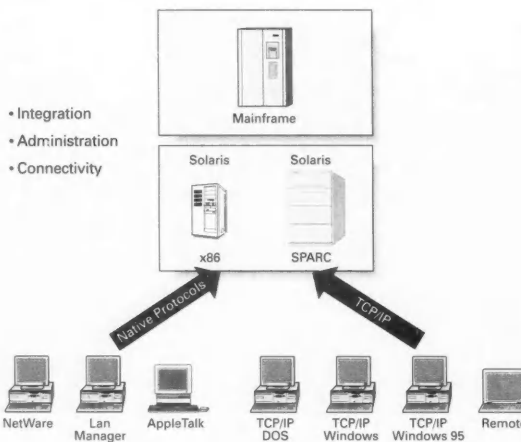
**Michael Bloomberg, Bloomberg Financial Markets:**

**"Informix developed core internal parallelism in DSA, which is different than other types of add-on parallel database capabilities we've seen. Since the parallel processing features are internal, rather than external, we're expecting impressive performance gains. It's clear that Informix thought this technology through."**

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### SolarNet: PC-to-Enterprise Networking



### Integrating PCs Into The Enterprise ... continued

and PC LANs are connected to the enterprise network, how do you keep the system from bogging down?

The answer is through a scalable, distributable operating environment that maximizes hardware investments while leaving room to grow. The Solaris operating environment

**A**s PCs and PC LANs are connected to the network, how do you keep the enterprise from bogging down?

from SunSoft is an excellent backbone environment for PC integration because it provides maximum flexibility. It runs on a wide range of hardware platforms — including x86, SPARC, and soon PowerPC —

and supports multiprocessor servers and multithreaded applications.

#### Check Under the Hood for Reliability

Data integrity and system availabil-

ity are critical requirements at most companies today — not just for high-end servers and mainframes, but also for PCs. When weighing the pros and cons of various PC integration alternatives, make sure you fully understand how PC reliability is maintained in a network environment.

Sun provides reliability through an extensive array of advanced features specifically designed for heterogeneous networks. For example, Sun tools and technologies let you:

- Back up and centrally manage data from heterogeneous PCs, lowering total administration and maintenance costs.

- Add to the robustness and high data availability of replicated sites through disk mirroring and "hot spares," ensuring full, automatic and transparent recoveries from disk crashes.

- Automatically update daily transaction records and replicate them to remote locations.

#### Don't Give Service Considerations Short Shrift

Until recently, it was easier to take service for granted. Unfortunately, many companies have discovered that high-quality service doesn't always come with high-technology products. Before selecting a technology vendor, ask a few pointed questions about the level and quality of their service offerings:

- Does the company's problem-resolution system provide timely answers, and is it accessible and reasonably easy to use?

- Beyond repairing and replacing defective components, can the company offer a wide spectrum of consulting services to assist its customers?

- Does the company employ dedicated service technicians, and can it leverage third-party expertise?

- What's the level of expertise of the service representatives who will support you?

- Does the company offer global service capabilities and facilities?

#### Enter the Internet from a Central Location

A key reason most companies are interested in integrating PCs into enterprise networks is to promote a free flow of critical information throughout the organization. The Internet facilitates this effort by allowing users to communicate with other companies and customers quickly and easily.

Many on-ramps exist to the Internet, and many vendors are willing to help you get online. If you want to keep IS and administration costs in line when connecting your business to the Internet, you need to establish a

centralized location for PC users to access Internet resources. Sun's products help administrators automate configuration while providing a simple-to-use interface for adding Internet mail users, thus significantly reducing deployment costs.

Security considerations are vital with the Internet since it is not owned or controlled by anyone, and has no built-in security mechanism. Select a vendor that has experience with Internet security and state-of-the-art security products.

#### *Ask for the Client List*

Many companies will claim to offer the perfect PC integration solution, but very few have the proven technology and expertise to assist on an enterprise scale. How do you separate the real from the hype? Start by asking for business references. Companies that offer true, tested solutions will have no problem with that — and you may pick up some valuable advice that's applicable to your situation.

As for Sun, we're proud to say

that more than one million PC users access network resources through our products. That makes us the leading vendor of PC integration solutions; and our long track record of success with international clients makes us one of the world's leading PC-to-enterprise integrators.

Edward Zander is president and general manager of Sun Microsystems Computer Company. ◆

**S**ecurity considerations are vital with the Internet.

## Client/Server: Beyond PC LANs

By Jim Brennan

**C**urrent PC LAN-based operating systems cannot provide the power, features, and functions that established Unix systems are capable of in today's distributed, client/server world.

The multitasking, networking services, and multithreading capabilities of today's Unix systems offer a design with relatively no upper-end execution or memory limits based on the ability to add network elements as needed. In addition, a gradual systematic upgrading strategy protects a customer's investment and avoids the costly step changes often incurred by other operating systems.

Unix provides experience and functionality in mission-critical business applications utilizing 7-by-24 service, and a heterogeneous environment which accommodates multiple protocols and supports multivendor distributed services in a plug-and-play manner by providing a well-defined set of interfaces and services.

#### **Unix Meets Demand**

Customers have demanded network-based file systems which typically reside on one system and are accessed by other systems via the network. Unix systems were designed for distributed, networked computing, unlike PCs.

Another primary driving force in client/server solutions is the need to preserve legacy mainframe-critical applications. Implementing major changes to these applications is a challenge because of the difficulty in modifying them and the possibility of introducing bugs and mistakes. A viable alternative is to move new or less critical applications to a high-performance/low-cost midrange server which offers platforms with the requisite price/performance characteristics. PC LANs don't have the functionality or price/performance capabilities to compete.

Evolving client/server networks deliver faster development, increased application capabilities at lower costs, and faster end-user response than mainframes or PCs. Companies wanting to quickly and cost-effectively respond to changing business conditions need to closely examine Unix offerings rather than the less effective PC solution.

Brennan is Senior Director Syndicated Services for WorkGroup Technologies, Inc., a consulting firm based in Hampton, NH.



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BY LAWRENCE HAMBLY

# Migration Strategies That Work

**A**gut-wrenching ordeal. A high-stakes gamble. That's how migrating from a mainframe environment to client/server computing is often portrayed. But to real-world businesses, the reality of the process is far less dramatic than the myth.

Creating a migration strategy requires systematically identifying, prioritizing, and analyzing business issues and opportunities, and a great deal of time and expert assistance is required.



LAWRENCE HAMBLY

SunIntegration Services, a systems integration and enterprise client/server computing organization, has developed a successful framework for analyzing the business

issues and making the tough decisions required for a transition to client/server.

## **Decision One: Maintain or Migrate?**

It's important to recognize that migration need not be a go/no go decision. A wide range of migration options are available. Begin by determining the level of urgency for migrating individual applications.

Some applications work fine as they are while other applications need a complete overhaul. The figure demonstrates how applications can be sorted in terms of their adequacy in meeting current business goals.

The x-axis evaluates how well the application currently fulfills its function in the business process. The y-axis rates its operational quality in terms of cost, technological stability, dependencies, and other factors. We recommend that users begin by plotting the applications that have the greatest impact on the business.

Once key applications are plotted, determine the most appropriate migration option for any given application. Applications that fall in the upper left quadrant are meeting business process needs and are of high operational quality; they probably should be maintained as they are. Applications in the upper right quadrant have high quality but are not meeting business process needs; they should be enhanced but not migrated.

Applications that fall in the lower quadrants are the best candidates for migration to client/server. If they are meeting business process needs but low in operation quality (lower left quadrant), it's probably time to move them to a new environment. If they're low on quality and functionality (lower right quadrant), consider overhauling them.

## **Decision Two: What Form of Migration?**

The next step is to decide how to migrate the applications chosen for migration or overhaul. There are five basic categories of options:

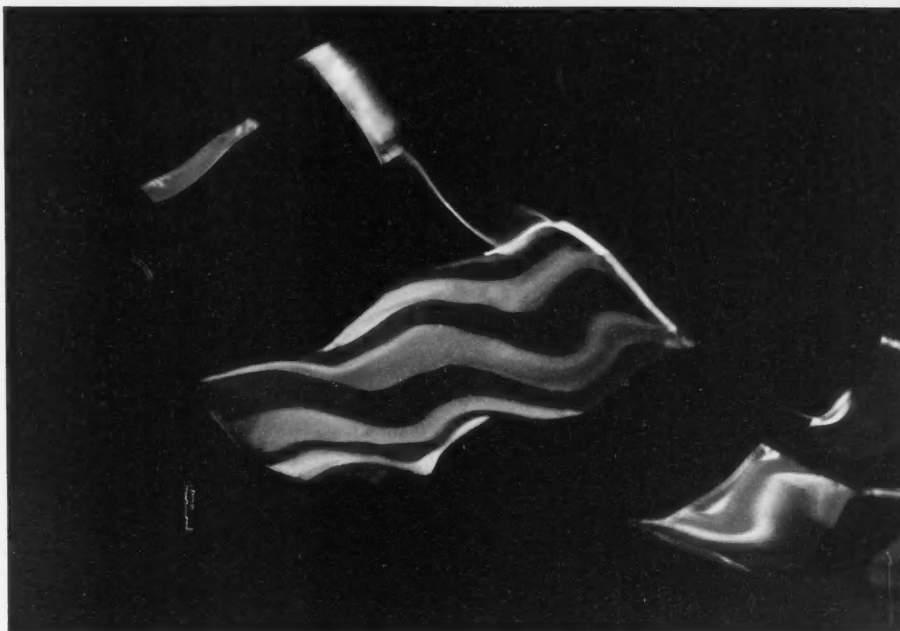
### **Refront**

Many legacy applications have excellent functionality but are not user-friendly. Refronting, or adding a more aesthetic interface to an existing application without changing the functionality, is an option. Users will have easier access to data and will produce decision-support reports faster and easier. This approach is low-cost and low-risk; current operations continue so that mission-critical operations aren't jeopardized. However, this is usually a short-term solution with limited benefits.

### **Replace**

Under this approach, a generic and often complex legacy application is quickly replaced by an off-the-shelf packaged application that runs on a new client/server platform. When contemplating replacement strategies, look for packages that offer better functionality and robustness than existing applications; make sure it is well tested in the marketplace, and verify that it is configurable, enhanceable, and well supported by the vendor.

Like refronting, replacing is a quick, low-risk solution. However, the potential for problems increases



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### Migration Strategies ... continued

because business processes must conform to the capabilities of the application rather than the other way around.

#### Rehost

Rehosting involves porting complete applications from a legacy environment to client/server with no change in functionality. Rehosting offers the advantage of low development risk and enables familiar legacy applications to be quickly transferred to a more cost-effective platform.

Extensive re-training of users is not needed since the architecture, inter-

face, and functionality do not change. Rehosting is an excellent approach for companies that want to decrease their IS maintenance and support costs by moving to client/server.

that enables the entire application architecture to migrate to client/server computing. Applications must be developed from scratch on a new platform so organizations have the opportunity to significantly improve functionality thereby taking advantage of the full potential of client/server environments.

Applications poor in operational quality and functionality are the best candidates for rebuilding. Rebuilding is a good option when time is not a major factor and the IS staff is talented and innovative. The only downside is that new or additional training of users and technical staff is usually required.

However, it can be the optimal solution for increasing competitiveness.

#### Identify the Tools and Resources Needed

The technology choices when migrating to client/server computing are numerous. Many vendors offer specialty products and tools for specific platforms, along with myriad consulting and systems integration services. The challenge is not locating viable options; it's narrowing them down.

The first step is to assess how the IS staff's mainframe disciplines translate to client/server skills since new skills are required. Staff requirements should be projected for additional technical skills, project management skills, and rapid prototyping skills.

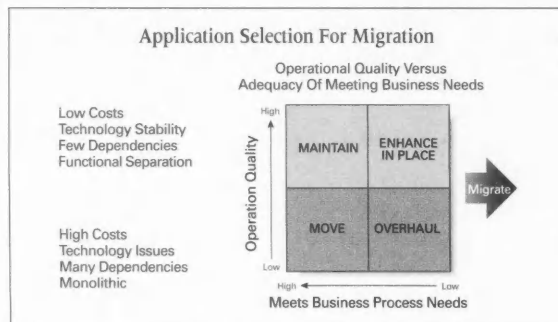
The skill levels of system users also need to be carefully examined. How familiar and comfortable are users with existing applications? What is their attitude about learning to use new applications? What resources are available to help them make the transition?

#### Choose the Right Partner

Finally, developing a migration strategy that works requires selecting the right partner to provide the right assistance. This can be the most important decision to be made in determining success or failure.

Sun is uniquely positioned to help customers take full advantage of enterprise client/server computing. We have the Unix and open systems networking professionals, leading-edge tools and technologies, best-of-breed third-party solutions, diverse educational resources, and global experience. Our experts know how to make your vision of success work in the real world.

Lawrence Hamblly is president, Sun-Service Division, Sun Microsystems, Inc. ◆



face, and functionality do not change. Rehosting is an excellent approach for companies that want to decrease their IS maintenance and support costs by moving to client/server.

The downside of rehosting is that it is, by definition, a quick fix. Rehosting does not change the application or the architecture, so it does not take full advantage of the new client/server technology.

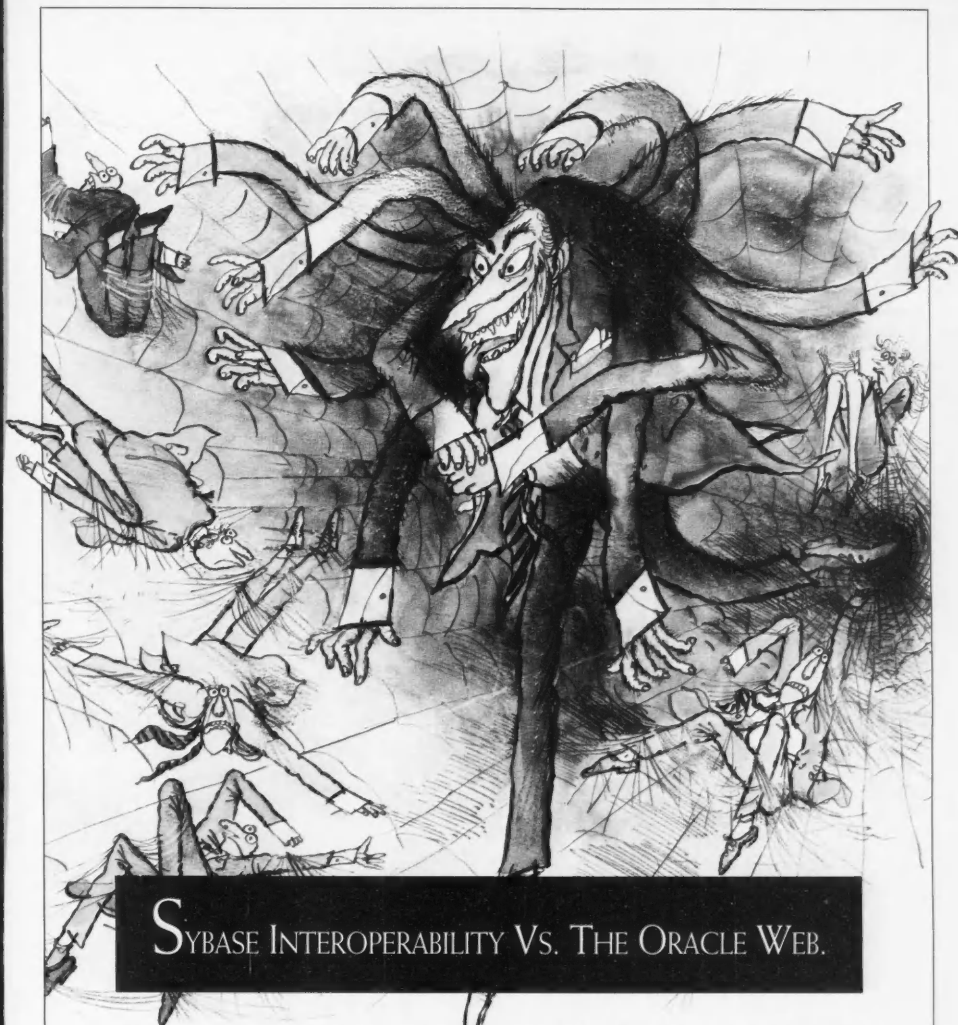
#### Rebuild

Rebuilding is a tailored approach

#### Redesign

Companies that need a dramatic improvement in competitiveness may wish to consider redesigning, an approach that attacks the roots of inefficiencies in business practices. Redesigning calls for reengineering the business process at the same time the legacy application is rebuilt, requiring fundamental business and IT changes.

Redesigning takes more time and carries more risk than other approaches and involves significant investments in time, technology, and training.



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PEOPLE BET THEIR BUSINESS ON US

BY WILLIAM RADUCHEL

# EXTENDING Systems Management to the Enterprise

**I**nformation technology (IT) departments today are asked to strike a difficult balance. Not only must they provide an integrated computing environment with easy access to computing resources, they must give individual departments the freedom to select their own specific hardware, software, and networking resources. What's more, they must cut costs while providing higher levels of service.



WILLIAM RADUCHEL

These corporate requirements, combined with intense external competitive pressures, have been the driving forces behind the move to client/server computing.

Most large organizations today are interested in some or all of the benefits

of client/server computing. In fact, in a recent survey of Fortune 500 companies, 97% of respondents indicated that they had plans to implement

some form of client/server computing. So it's no longer a question of whether to move to client/server. It's a question of how.

Client/server merges the best features of previous environments, adds new functionality and increased flexibility, and offers the best potential for maximizing return-on-investment and competitiveness.

However, the benefits of client/server computing come at the expense of increased complexity in systems management practices. Systems in legacy environments were typically distinct, discrete elements. A client/server computing management strategy must mirror the interdependencies and integration strategies of a distributed environment. That means it can't be "bolted on" after the client/server environment is in place; it must be thought through and implemented concurrently with the enterprise architecture.

This article presents a structured framework we've developed for analyzing the many issues that must be addressed. We believe you'll find it

to be a useful tool in tackling the challenges of developing, deploying, and managing resources in an enterprise client/server environment. The following framework breaks down enterprise systems management into smaller, more easily digestible pieces.

## *Building the Foundation*

Without a strategic approach to systems management, pitfalls can occur. Companies have suffered higher IT costs, missed business opportunities, revenue loss due to network outages, and inefficiency of both computer users and administrators.

The competitive impact of a flexible, manageable infrastructure can be enormous. The right enterprise systems management strategy allows an organization to:

- Maximize overall system performance while minimizing long-term cost of ownership.
- Protect all aspects of the enterprise from unauthorized access, corruption, and disaster.

• Optimize enterprise productivity so the system is a source of continuous competitive advantage.

• Control enterprise computing resources for maximum quality and efficiency.

Sun Microsystems' experience with both the risks and rewards of rebuilding the enterprise systems management infrastructure has led to the creation of a three-tiered approach that takes into account people, process, and technology issues. Understanding these three tiers is the first step toward building the enterprise systems management foundation.

## *People Issues: Transitioning the IT Organization*

An information system is only as

**I**t's no longer a question of whether to move to client/server. It's a question of how.

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### Extending Systems Management ... continued

good as the people who make it work. The corporate culture, skill sets of the IT organization, and organization structure in general should be key considerations in designing a systems management strategy.

**A** working partnership is needed between centralized IT staff and business units.

Recently, workgroups have tried to gain independence by breaking away from IT monarchies, but they've created a new set of problems: compatibility issues, cost overruns, failure to leverage existing systems, and more.

What's needed for effective management of distributed systems is a partnership between centralized IT staff and business units. At Sun, for example, all IT personnel who support the enterprise infrastructure report to a centralized IT organization; IT personnel who support business units become part of those units. This

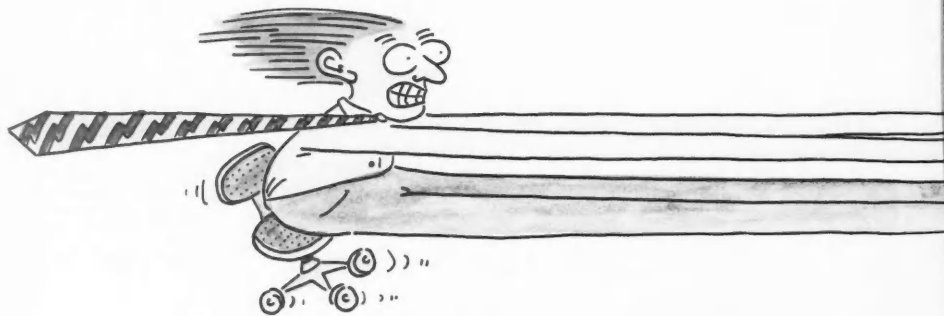
fosters cross-departmental communication, gives IT employees a better appreciation of business issues, broadens the technical training of many employees, and helps everyone learn to find a middle ground between what's right for the corporation and what's right for the business unit.

#### Process Issues: The Big Rules

Since the whole point of client/server computing is to facilitate change, systems management processes should also work to facilitate change. Specifically, processes should follow Sun's five "big rules" and be:

- small
- simple
- separable
- scalable
- stateless.

For example, by limiting the selection of system and database configurations, enterprises can meet the needs



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of end users without sacrificing interoperability and automation. Standard configurations also ensure that data is stateless; it's not owned by anyone and can be accessed by any authorized user. Other processes that should follow this strategy are system/database configurations, change management, and software distribution.

#### *Technology Issues:*

##### *Getting Higher Performance at a Lower Cost*

In order to increase overall system performance while lowering total ownership costs, client/server technology must meet a number of enterprise-wide criteria. In addition to managing multiple systems, it must provide information at the enterprise level, and that requires the integration of what used to be separate tasks: database, systems, and network administration. Tools that make this possible are widely available; however, that's both a blessing and a curse. The blessing is that the tools deliver tremendous

improvements of enterprise performance at dramatic cost reductions; the curse is that there's confusion over standards. The solution is to use an open systems approach; one that can accommodate multiple industry standards today and adapt to new standards tomorrow.

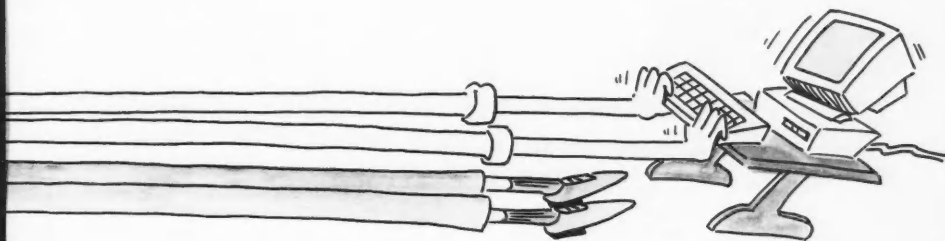
#### *Solving Specific Problems*

Let's consider how a business can go about solving specific challenges in data, application, and network management.

##### *Data Management: Maximizing Availability and Integrity of Data*

Next to people, data is the organization's most valuable asset. But, as the volume and distribution of data grows exponentially, how can organizations prevent data corruption without driving up storage costs?

**T**he solution is to use an open systems approach.



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AFRO

## CUSTOMER PROFILE

### DUNLOP TIRE

## *Dunlop Tire Races To An Open Future*

Fragmented, outdated information systems were once the bane of Dunlop Tire Corp.'s existence. The company was rapidly losing ground to competitors which could process orders faster and run their operations at lower cost. To respond more quickly and efficiently to the demands of a competitive marketplace, Dunlop developed an ambitious IS plan based on open systems and a clear strategic direction. "Having the right architecture design strategy is essential for us to meet our goals," says Dennis Courtney, Dunlop's Director of Information Systems. In Dunlop's case, that approach features GUIs, Oracle database management, and Sun servers as the primary hardware platform.

#### DECOUPLING DATA

Central to Dunlop's strategy is separating data and applications from each other. "That's key to our goal of getting information to whomever needs it," says Courtney. The strategy calls for each of Dunlop's three main locations to have two Sun SPARCserver 1000s — one for running their Oracle database, the other for running core business applications. Not only is data access improved, system performance is maximized.

Other applications are run on the dozen or so SPARCserver 10s and 20s that Courtney reserves for that purpose. "A modular approach to CPU deployment is more flexible and easier to manage," says Courtney. "And the Sun servers have yet to go down."

#### BUYING, NOT BUILDING

Dunlop has made a strategic decision to wherever possible become a package-oriented shop, buying applications from outside vendors that conform to open standards and fit into Dunlop's strategic framework. "Instead of coders and legacy systems specialists, we're becoming process analysts and integrators," says Courtney.

This decision has a two-fold benefit. First, it allows Dunlop

to satisfy application requirements without the burdensome expense of developing them from the ground up. Second, it allows the IS staff to get closer to their customers on the business side, instead of burying themselves in extended programming projects.



DENNIS COURTNEY  
DIRECTOR, INFORMATION SYSTEMS

Thus, IS staffers build strategic core competencies, rather than focusing on commodity skills easily purchased elsewhere. This strategy makes vendor selection critical. Dunlop has chosen Oracle Corp. which not only provides its own financial, manufacturing, and analytical applications, but also has strong third-party vendor support. "With Oracle, we can add best-of-breed products from other vendors and integrate them with what we already have in place," says Courtney. Sun Microsystems is also a key partner in Dunlop's new approach. "Sun not only makes great hardware, they are an invaluable source of expertise for infra-

structure planning and design," says Courtney.

#### ACROSS BOUNDARIES

With a centralized database architecture and a distributed network infrastructure, Dunlop is well-positioned to support the type of cross-functional operations that makes for a responsive, fast-moving business. At the same time, Dunlop has had to change its IS subculture. Courtney has built cross-functional teams responsible for project design, rollout, and maintenance. "We put Unix people, network people, and support people together," says Courtney. "They're in self-directed teams that take full responsibility for results — no finger-pointing allowed."

The approach extends beyond the IS department to include Dunlop's strategic suppliers. "We have the Sun and Oracle people sit down with our own staff so we can work together on current and long-range issues," says Courtney. "As partners, we share expertise and make strategic architectural decisions together."

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## CUSTOMER PROFILE

### HOLIDAY INN

# Holiday Inn and IT Double Up For Profits

Holiday Inn, the world's largest hotel chain, utilizes a worldwide real-time information system to provide customer service and drive revenues.

"We're constantly monitoring demand for rooms in real time," says Don Lynch, Holiday Inn's Director for Worldwide Hotel Systems Development. Based on that demand, discount programs can be used as required to maximize occupancy, so no room ever has to be sold for less than its real market value.

#### BUILDING A RESPONSIVE ARCHITECTURE

Holiday Inn Worldwide (HIW) achieves this continually tuned balance through a carefully crafted IS architecture. The applications architecture forms a triangle connecting three points: the PC-based front desk application running at each site, the mainframe IBM Transaction Processing Facility running in Atlanta headquarters, and the Informix-based HIRO (Holiday Inn Reservations Optimizer) system that runs on a Sun SPARCcenter 2000, also located in Atlanta.

Reservations taken at the front desk are constantly monitored. Holiday Inn's system can quickly respond to changing conditions regardless of the pace of reservation traffic.

#### ROBUSTNESS, RELIABILITY, SCALABILITY

A sophisticated satellite-based network provides instantaneous data communications between the hundreds of hotels dispersed across the globe and Holiday Inn's headquarters. The combination of TCP/IP as the network protocol and "cookie-cutter" Unix configurations in each hotel provide a high level of manageability as well.

Essential to the successful rollout of the HIRO system was Holiday Inn's Sun hardware platform. "We needed the scalability of a symmetrical multi-processing architecture," says Lynch. "For price and performance, we couldn't beat

Sun." With constant responsiveness to changing conditions, the uninterrupted system availability is essential as well.

The rollout schedule required gradual implementation of HIRO at a growing number of sites over time. "We bought the SPARCcenter 2000 with eight processors, knowing we could go up to twenty," says Lynch. In fact, Lynch's staff has found the server's modular design makes it simple to modify their servers themselves.

#### MORE INFORMATION, MORE PROFITS

HIW is now implementing a data warehouse approach that will allow Holiday Inn to flexibly use all the information resource it develops through its hotel operations as a powerful competitive weapon. "Within 72 hours of each day's closing, we have all the information on all our customers 'scrubbed' and in place," says Lynch. This information is essential for Holiday Inn to achieve strategic goals and execute critical operations.

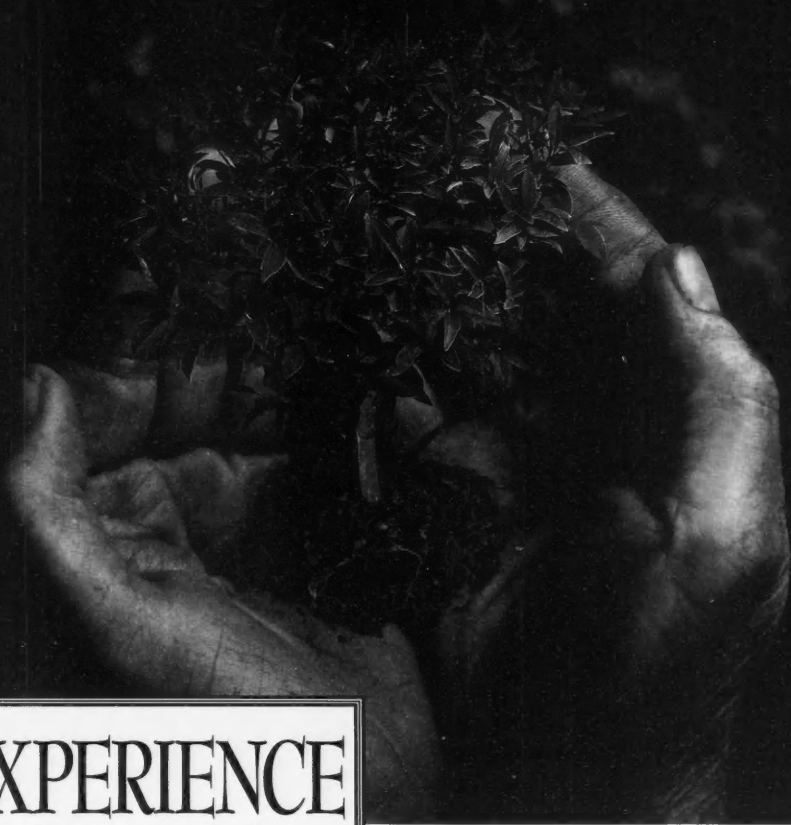
The long-term goal is to move to a true three-tiered architecture, whereby front-line hotel operations will be fully decoupled from back-end resources, with the intervening middleware layer

enabling Holiday Inn to flexibly design information processes according to their critical business needs. "This is a very exciting time to be in IS," says Lynch. "Our ability to contribute to competitiveness and profitability has never been greater."



DON LYNCH  
DIRECTOR FOR WORLDWIDE HOTEL  
SYSTEMS DEVELOPMENT





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Windows applications like Microsoft Office and Lotus SmartSuite. It's not picky when it comes to hardware, either. It's the only 32-bit software environment that runs on x86 PCs, SPARC® systems, and soon, even Power PC. And it's scalable from 486 laptops to Cray supercomputers. Solaris is enterprise ready, too. Unlike PC desktop based environments, it offers the most popular system and network management tools in the industry, so you can finally get your enterprise under control. From PCs to mainframes, nothing

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# Dell delivers package for high-end servers

By Jaikumar Vijayan

■ **Dell Computer Corp. is adding more muscle to its server lines. The company recently announced availability of its Server Management package for users of its PowerEdge multiprocessor servers running Novell, Inc.'s NetWare.**

The management package, which sells for \$499, integrates Dell's Safesite server management software with Intel Corp.'s recently announced LANdesk Management Suite 2.0.

The package includes the following features:

- A drive array performance monitor that gives the status and performance of the SCSI array subsystem.
- Performance and traffic monitors for customized monitoring and analysis of performance and traffic across the entire network or individual servers.
- An alert management system that allows definable alert conditions and can alert by fax, page or on-screen if certain conditions are triggered.
- A mobile network administration feature that allows remote log-ins and diagnostics.

For users, the increased availability of server management software such as Dell's highlights a growing vendor emphasis on bringing manageability and

dependability to the server arena, analysts said.

For instance, last week Compaq Computer Corp. announced it will introduce its Insight Manager server management software and other features such as error checking and correcting memory, drive array management and disaster recovery services to its mainstream server lines. Other companies, such as IBM for instance, have made server management tools the linchpins of their PC server strategies.

## Snap to it

At the same time though, Dell has taken a different approach to server management by snapping together its management software with Intel's LANdesk open server tool set, which works with a variety of Intel hardware, said John Dunkle, president of WorkGroup Technologies, Inc. in Hampton, N.H.

"By snapping Dell systems architecture into Intel's open tool suite, they are offering their customers an expansion in server and network management capabilities" that is very different from what other vendors offer, Dunkle said.

The package allows not just the management of the server, but all the local network assets using a single suite of management tools, Dunkle said.

The new software is available now.

# Apple swings into graphics, multimedia

By Mark Halper

Apple Computer, Inc. has unveiled a bevy of graphics and multimedia products in hopes of reinforcing its leadership in those areas. Users, while impressed, were lukewarm about their implementation plans, especially because some of the products are not yet available.

Apple's product barrage, launched at the Demo '95 conference in Palm Springs, Calif., two weeks ago, included a three-dimensional version of the company's QuickDraw graphics program, called QuickDraw 3D. It also included what Apple called a desktop virtual reality system, or QuickTime VR, and a videoconferencing system called QuickTime Conferencing.

## Quick on the draw

QuickDraw 3D is intended to allow developers to build 3-D performance into graphics programs. Apple is positioning QuickDraw 3D as a product that brings workstation-quality graphics to the desktop with Apple's signature ease of use. About 20 third-party software houses have pledged support for the program, Apple said.

While some users viewed the program as suitable for technical purposes, others saw potential for everyday use.

"It opens up a lot of opportunities for presentations," said Bruce Gordon, project director at Walt Disney Imagineering in Glendale, Calif., and a Power Macintosh user. "Everybody has gotten so slick with desktops and video presentations that they all look the same now. So the ability to rotate objects will help distinguish a presentation."

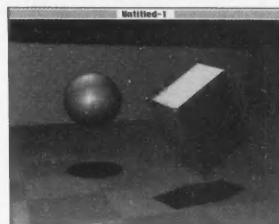
But QuickDraw 3D may not be widely available any time soon. The company plans to ship developer's kits this summer and include the software as an operating system extension in future Power Macintoshes that use the Peripheral Component Interconnect (PCI) bus. The PCI boxes are also due this summer.

Dave Nagel, senior vice president of Apple's AppleSoft division, said the company plans to build the feature into its operating system in mid-1996, when Apple's next-generation operating system, Copland, is due. Users will also pay an overhead price because QuickDraw 3D will require 16M bytes of memory, Apple said. The company has not set pricing.

Meanwhile, Apple's QuickTime VR will

require even heftier memory: Apple recommends no less than 40M bytes of RAM. The company plans to make QuickTime available to developers next month and provide a Mac OS and Windows version.

Programs written to QuickTime VR will allow users to walk through and around 360 degrees of a site that has been photographed and stored to a disk. QuickTime VR also permits users to



Apple's QuickDraw 3D allows developers to build three-dimensional performance into graphics programs

zoom in on a scene and pick up objects. Most QuickTime VR programs will be CD-ROM-based, an Apple spokeswoman said.

Apple charges a \$2,000-per-seat licensing fee for the product, plus a royalty fee that ranges from 40 cents to 80 cents per unit for commercial applications that use

## QuickTime VR

John Grabrick, senior systems engineer at 3M Co., a large Macintosh shop in Minneapolis, said he envisions plenty of practical uses for the technology.

"It would be good for taking a look at a machine line or a plant," he said. "You take a few photographs and come back and take a walk through to see what kind of modifications you need."

Eytan Bernet, director of software engineering at educational software vendor Tom Snyder Productions in Watertown, Mass., was also enthusiastic about the concept but said that his own trial runs have proved QuickTime VR is not yet ready for prime time. "QuickTime VR is very impressive, but there [are] a lot of problems in terms of bugginess," he said.

Several users contacted agreed that Apple's new videoconferencing program is also not ready for business deployment. At Demo '95, QuickTime Conferencing delivered jerky, small-frame video of a remote conference caller.

Apple has yet to set availability, but a spokeswoman said the company is working with "a wide range of companies, including [telephone companies], network, software and hardware providers and developers to provide a range of solutions." Those solutions should be available in the second half of this year, according to Apple.

Some users said they do not see the need for videoconferencing.

"The 'warm fuzzy' of having someone 'present' from a foreign site would be nice but not necessary," said Frank Calabrese, manager for personal computing at Bose Corp. in Framingham, Mass.

## Briefs

**Compaq, Inventec team up**  
Compaq Computer Corp. said it had established a manufacturing and design relationship with Inventec Group, a Taiwanese manufacturer [CW, Jan. 23]. Inventec will build a high-end, multimedia notebook, due out by midyear, said Hugh Barnes, Compaq's senior vice president of the portables division. Barnes said Compaq began looking for a partner in the middle of 1994 because it saw its position in the market lagging. Barnes said Inventec's experience in building not only notebooks, but also personal digital assistants and calculators, would be helpful to Compaq.

**IBM outlet gets heavy traffic**  
IBM's PC factory outlet store in Morrisville, N.C., has been a smashing hit, according to the company. Open just one year, the store, which mainly sells overstocked, refurbished and withdrawn products at sharply discounted prices, has been drawing an average of 400 clients a day — far more than IBM had anticipated.

**CyberSource adds Mac titles**  
Internet software shop CyberSource Corp. in Menlo Park, Calif., said last

week it will now carry Macintosh titles on its Internet site, software.net. Some 2,100 Macintosh titles will be available for on-line distribution, said CyberSource, which now claims a total of 7,800 titles at its site. Separately, the privately held firm announced the appointment of James Hogan, former head of worldwide development and marketing of information technology services at CompuServe, Inc., as its vice president of marketing.

## Intrafed joins with Paperclip

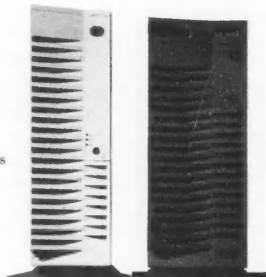
Intrafed, Inc. in Bethesda, Md., will integrate its Powerscan front-end document input and processing software with Hackensack, N.J.-based Paperclip Imaging Software, Inc.'s Paperclip retrieval software. After scanning documents with Powerscan, users can manage documents regardless of origin.

## Fax at last

Users may finally be able to link their fax machines and PCs by this summer when Japanese vendors NEC Corp. and Ricoh Co. market their Microsoft Corp. At Work-based fax machines, the companies disclosed last week. Initially, NEC will market its machine in Japan but is considering overseas sales, a spokeswoman said. Ricoh will sell its machine in the U.S. first.

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## New Products

**MapLinx Corp.** has announced MapLinx for Windows 3.0, data mapping software.

According to the Plano, Texas, firm, MapLinx for Windows 3.0 lets users view data geographically on a U.S. map. It works with leading Windows databases, contact managers and spreadsheets.

Features include enhanced thematic shading, automatic range calculations, querying by distance to locate points within a defined range and display of up to 64 different symbols. The product is network-ready and can label all major state and interstate highways.

MapLinx for Windows 3.0 costs \$149.

► **MapLinx**  
(214) 231-1400

**Innovative Solutions & Technologies** has announced OpenExchange Pro 1.5 for Windows, software that provides data import and export capabilities to database applications.

According to the Joplin, Mo., company, OpenExchange Pro 1.5 for Windows lets users link fields between differing file structures while selecting data formatting functions from a field properties screen.

The product can query and reformat data without programming, merge mailing lists into a single list, parse names and addresses into separate fields and transfer data to a laptop.

OpenExchange Pro 1.5 for Windows costs \$189.

► **Innovative Solutions & Technologies**  
(417) 781-3282

**Hewlett-Packard Co.** has announced the HP E3491A Pentium processor probe, a run-control functionality probe that works with HP's logic analysis and prototype analyzer systems.

According to the Palo Alto, Calif., firm, the probe attaches to the system being tested and provides access to the processor's registers so it can be debugged.

The product also lets the screen of the prototype analyzer display the complete

state of the Pentium system.

The HP E3491A costs \$7,500.

► **Hewlett-Packard**  
(415) 857-1501

**Antec, Inc.** has announced Descartes, a PCMCIA card reader/writer internal drive for PCs.

According to the Fremont, Calif., firm, Descartes fits into a 3½- or 5¼-in. floppy drive bay and lets users use any PCMCIA memory card, hard drive, LAN, modem or peripheral device on the desktop.

The product lets two cards work simultaneously and comes with a card-ejection mechanism. It costs \$149.

► **Antec**  
(510) 770-1200

**Motorola, Inc.'s** Transmission Products Division has announced the Lifestyle and Power series desktop 28.8K bit/sec. data/fax modems.

According to the Huntsville, Ala., firm, the modems support Caller ID, provide enhanced security, connect with all lower-speed modems and include a ClearFax feature that eliminates fuzzy faxes.

The Lifestyle series is targeted at home and first-time PC users for information retrieval from on-line services, interactive gaming and electronic shopping and banking.

The Power series is targeted at business users and includes a distinctive ring feature that simplifies the sharing of a single phone line by a fax machine, answering machine or telephone.

Lifestyle modems cost \$325 for PCs and \$345 for Macintoshes. Power modems cost \$375 for PCs and \$395 for Macintoshes.

► **Motorola**  
(205) 430-8000

## Product short

**MicroTouch Systems, Inc.** has introduced the Mac n' Touch AV-14, a touch monitor for Macintoshes. The product combines MicroTouch's touch technology and Apple Desktop Bus controller with Apple Computer, Inc.'s AudioVision monitor. Cost: \$1,610. MicroTouch Systems, Methuen, Mass. (508) 659-9100.

## OmniBook

CONTINUED FROM PAGE 39

appeared to perform about the same as the 66-MHz 486 chips on desktop machines — fast enough for most rational notebook applications. The audio is com-



HP's OmniBook 4000 offers an exceptional screen and warranty at a low price

parable to that of other notebooks, which means you may need to hook up external speakers to the system's audio out port if you want to impress listeners.

The battery lasted a little more than two hours when the machine was used for sporadic tasks and a little less than two hours when playing multimedia titles. HP offers a utility that estimates the remaining time on the battery.

The unit comes with Microsoft Corp.'s

MS-DOS 6.20, Windows for Workgroups 3.11 and preinstalled utilities. Utilities include one for mouse cursor and tracking control, system configuration and Traveling Software Corp.'s LapLink remote access software.

The package works through OmniBook's modem, the infrared port or a cabled network. The unit comes ready-to-run, with no assembly or preparation involved.

## Not perfect

The documentation is not up to HP's usual high standards, but any user with computer experience can set up the OmniBook and add peripherals. The biggest shortcoming in the Quick Start manual is the description of external ports and an ambiguous description of how to replace a battery.

The machine does not open any new technological territory, but the screen and warranty are exceptional.

If you are looking for a high-end notebook and price is an object — and especially if you can take advantage of the infrared port to make a network connection — the OmniBook 4000 is a strong contender.

Angus is project director at The Data Works Limited in Seattle.

## Lotus

CONTINUED FROM PAGE 39

This means organizations can now build training clips or short marketing pieces and release them throughout the workplace or to customers whether they are multimedia-equipped or not.

## Show, not tell

However, the product's real advantage is in showing end users how to do things that normally have to be explained in person. For example, Kemper Securities, Inc. in Chicago spends much time and energy training new brokers and assistants on computer systems and procedures, said Joel Tepp, vice president of investments at Kemper.

"I am strongly recommending to Kemper that we put together a training library for using our in-house system," Tepp said. He said 90% of the calls from end users to Kemper's help desk concern only 10% of the features in their word processors and spreadsheets.

Tepp said the ScreenCam training clip would cost him about three hours to develop and could be distributed to Kemper's 160 servers over a weekend.

"This would compare to spending thousands of dollars per branch for third-party training," he said.

Users noted one shortcoming in the program: The movie clips still cannot be edited on a frame-by-frame basis. To make changes, the editor must replay the entire clip to redo any audio sequence.

However, most of those interviewed said that because they are producing only 10- to 15-minute video clips, this shortcoming is not that big an obstacle for them.

"It should be used for getting a quick and dirty simulation on the screen," Yockelson said. "It's aimed at reducing the shadow [information technology] calls, not as a full-motion video replacement."

Yockelson said ScreenCam has appeal for companies that want to demonstrate to prospective clients how their products work or that want to conduct mass mailings. The demonstrations could be performed by simply running the ScreenCam movie stored on a diskette.

## Easier with screen clips

The Federal Document Clearing House in Boston uses the product to demonstrate how to gain access to its content — congressional documents and testimony — via on-line services, said Jim Ellis, a managing director at the firm. Ellis said the clearinghouse found it much easier to build a screen clip to demonstrate how to access the content than to try to explain it verbally.

"How do you explain to someone how to navigate through something like the Internet to find these documents? It's a lot easier to just show them," he said.

ScreenCam Release 2.0 will be available before the end of the first quarter. The product requires an Intel Corp. 80386 or higher running Windows 3.1 and DOS 3.3 or higher, and a VGA 16-color graphics adapter and monitor. Pricing is not yet available.

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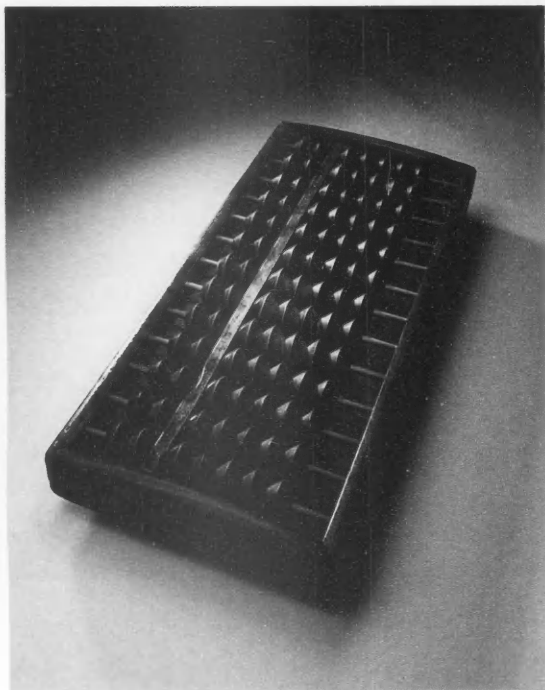
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## Videoconferencing slowly goes desktop

Benefits abound but cost, coverage and need eludes many customers

By Mary Brandel

Andrew Drummond did not let cynicism get in his way of installing desktop videoconferencing at Johnson Controls, Inc. in Plymouth, Mich. At least not for very long.

"If you'd asked me [about desktop videoconferencing] six months ago, I would have said it wouldn't be ready for another year or two," said Drummond, a LAN manager at the automotive seat manufacturer.

That was then. Today, 15 Johnson sites participate in international training, technical support and even software distribution via Intel Corp.'s ProShare desktop videoconferencing system.

Johnson Controls is one of a small and slowly growing number of true believers. For those companies, desktop videoconferencing applications are spreading like wildfire (see story below).

But while many companies are dabbling in the technology with two- to three-system pilots, widespread deployment is still two to three years away.

On one hand, software and equipment prices are plummeting 30% per year, said Will Strauss, an analyst at Forward Concepts, a research firm in Tempe, Ariz. And while users grumble about high transmission costs and spotty coverage, many are successfully using ISDN to conference within their own enterprises.



Some users are employing plain old phone lines.

However, quality is still not up to full-motion-video standards, and while interoperability is improving, the confusing standards wars and complexity of setup are enough to discourage the hardest of users (see story at right).

Moreover, "people don't necessarily need video," said an analyst in California. "They have to find a damn good reason to do it."

Indeed, at this point desktop videoconferencing is most popular

not use video) or have already been using room-based systems. If you've already justified upward of \$50,000 for a group conferencing system, desktop videoconferencing is easy, users said.

"This stuff pays back in a matter of months," said Ken Pawlak, marketing communications manager at Carrier Corp., a subsidiary of United Technologies Corp. in East Hartford, Conn.

A key to cost-justification is that "you can milk this to do anything you want," Pawlak said.

### A picture is worth...

The following are average costs of an ISDN-based desktop videoconferencing system for 10 users

Software	\$10,000-\$25,000 (Cost per seat: \$1,000-\$2,500)
Hardware*	\$1,600-\$2,000
ISDN installation	\$3,000
Annual ISDN usage charge**	\$3,600-\$12,000
Total first-year cost	\$18,200-\$42,000

\*Average price for a 66-MHz, 486-based PC

\*\*Does not include long-distance charges, which are generally twice as much as telephone long-distance charges.

Source: Multimedia PC Systems, Richardson, Texas



among companies with a high need for collaboration, such as design and engineering firms. Many are either adding video to data collaboration applications (where users talk and share data but do

not use video) or have already been using room-based systems. If you've already justified upward of \$50,000 for a group conferencing system, desktop videoconferencing is easy, users said.

### A piece of the action

Carrier originally thought desktop videoconferencing would help it with training and remote technical support. But product designers soon wanted a piece of the action, and managers realized it would help them better conduct financial reviews. That is how an eight-system pilot in August turned into a 60-system rollout earlier this month, with AT&T and its Vistium videoconferencing system the vendor and system of choice.

Bottom-line benefits, Pawlak said, include cost and time savings as well as increased productivity and efficiency.

But hospitals, universities, small businesses and even corporations are also using videoconferencing to fill in personnel and expertise gaps, said Stephen Shao, director of the office of applied research at Tennessee State University, which uses PictureTel Corp.'s PCS 100 system.

And soft benefits figure in strongly as well. "It gives a personal touch to the business," Drummond said.

For instance, why do United Technologies managers need to see one another during financial reviews? Why not just use data collaboration to share spreadsheets?

"It's human nature," Pawlak said. "You've got to look someone in the eye if you're cutting their budget by 50% or asking them what happened with a particular customer."

But the turning point for widespread desktop videoconferencing deployment, analysts said, hinges on further price drops.

A little while ago, people were willing to pay \$295 for a word processor. Now it

## Many obstacles to overcome

Last year saw much progress, but many hurdles remain before videoconferencing will become widespread. These include the following:

### Poor interoperability

Standards groups are working on it, but you currently cannot videoconference between two different vendors' systems on the LAN.

Out on the wide-area network, long-distance carriers do not interoperate. Bridges are available but expensive. Local carriers provide a way around the problem.

Current LAN systems cannot dial out to WAN systems. PictureTel is working on a transcoder, which is slated for late 1995 availability at \$1,500 to \$2,000 per port. Intel is also beta-testing a new version of ProShare that would allow an H.320 upgrade and thus a gateway to the WAN.

### So-so quality

Despite improvements, today's systems are not like TV. Desktop systems tend to operate at 15 frame/sec. vs. the 30 frame/sec. of room-based systems. This creates a jumpy, jerky image. You can control this somewhat with a good compression algorithm. And many desktop systems are designed simply to show a single person in a small window of the screen. So if you want to see a group or a full-screen image, you will have to go to a full-CIF (rather than quarter-CIF) format.

### ISDN coverage and cost

Users cited coverage improvements for ISDN. "It's projected to [cover] 85% [of the U.S.] by year's end," said Andrew Drummond, a LAN manager at Johnson Controls. But because of today's gaps, "desktop videoconferencing is pretty much limited to operating within an enterprise," said Alfred Riceom, founder of Multimedia PC Systems.

Most users plan to use ISDN or switched-56. However, many said they believe that ATM or even plain old phone lines are the next frontier.

—Mary Brandel

## Creative sparks fly

If you want to light users' imaginations on fire, give them desktop videoconferencing.

"So many different needs have grown out of [our original system] that everybody has designed a use for it," said Andrew Drummond, a LAN manager at Johnson Controls.

"Once the whole organization is connected, the justification becomes relatively simple. You need ubiquity before it can work," said David Mack, an analyst at Workgroup Technologies, Inc. in Hampton, N.H.

At Johnson Controls, training and technical support were the originally slated applications. Now the company also uses Intel's ProShare for software distribution. "While we're talking, we can show [users] how to run [the application] and transfer it at the same time," Drummond said.

Next, Drummond said, the legal depart-

ment wants videoconferencing for depositions and meetings.

Of course, high use leads to bandwidth problems for LAN-based systems. That is why LAN-based systems are at a very experimental stage for most companies.

At Johnson, Drummond uses Intel's LAN-Desk to monitor use. "Once I hit 10% of available bandwidth, I don't allow any more calls over the network. I put them over ISDN instead," he said.

That was not an option for The Chase Manhattan Bank NA in New York. Earlier this month, the bank rolled out a system from Unidata, Inc. in Flushing, N.J.

Bandwidth was so precious that "we took [videoconferencing] out of band" and went to the phone lines, said Mark Baranovic, vice president of the trading technology services group at Chase.

"If something as silly as a shortage of bandwidth created a financial loss, that would be intolerable," he said.

—Mary Brandel



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## AGENDA

9:00-11:50

### MORNING SESSIONS

- **Introduction**  
*Kirk Campbell, President & CEO*
- **Transition to the Mass Market Era**  
*David C. Moschella, Senior V.P., Worldwide Research*
- **User Information Technology: Results of IDC's Annual Global IT Survey**  
*David Vellante, Senior V.P., Systems, Storage & Software Research*
- **Technology for the Next Wave**  
*John Gantz, Senior V.P., Desktop Research*

1:00-1:45	1:45-2:30	2:30-3:45	3:45-5:00
<b>ROOM 1</b>			
Migration to High-Speed LANs <i>Lee Doyle</i>	Remote Access - Panel Discussion	Telecommunications Convergence on the Information Highway <i>Gigi Wang</i>	Internet - Panel Discussion
<b>ROOM 2</b>			
Personal Systems: Opportunity, Dynamics, Competition <i>Bruce Shapiro</i>	Meeting Customer Demand for PCs - Panel Discussion	PCMCIA: A Key Enabler of Mobile Computing <i>Clifford Darby</i>	Mobile Computing Without Wires - Panel Discussion
<b>ROOM 3</b>			
Midrange Shift to Low Cost Channels <i>Dorothy Rosenthal</i>	Building Systems and Servers Market Power - Panel Discussion	The Impact of Internet Adoption on the Systems and Servers Business <i>Petra Goldfarb</i>	The Application of Systems Technologies on the Way - Panel Discussion
<b>ROOM 4</b>			
The Changing Structure of the Software Industry <i>Anthony Picard</i>	Workgroup and Client/Server Applications - Panel Discussion	Microsoft Targets the Enterprise - Should Everyone Else Run and Hide? <i>David Card</i>	Systems, Software, and Tools for Emerging Operating Environments - Panel Discussion
<b>ROOM 5</b>			
Services Opportunities and Vertical Markets <i>Mike Melonovsky</i>	Managing Client/Server Complexity - Panel Discussion	What Makes Mass Markets Tick? <i>Andy Rose</i>	Customer Technology Direction - Panel Discussion
<b>ROOM 6</b>			
Emerging Markets in Peripherals <i>David Moschella</i>	Personal Computer Markets by the Asia/Pacific Region - Panel Discussion	Opportunities in the Middle East and Africa <i>David Blau</i>	Distribution Channel Strategies for Latin America - Panel Discussion

### Special Guest Moderators

Bob Metcalf, Vice President of Technology, International Data Group  
Pat Ferrell, President, Infotainment World  
John F. Rousseau, Executive Vice President, Infotainment World  
Paul Gillin, Editor, Computerworld  
Michael Fitzgerald, Senior Editor, Mobile Computing, Computerworld



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# HP reverts to engineering roots

By Jean S. Bozman  
PALO ALTO, CALIF.

After spending most of 1994 trying to sell the concept of Unix workstations as desktop machines that serve enterprise applications, Hewlett-Packard Co. has decided to leave most of those desktops to Windows. Instead, HP will resume its traditional stance as a provider of workstations to engineers in large companies.

HP is launching an Empowered Engineering marketing program, which it quietly piloted with some of its largest customers several months ago. The program ensures that HP's workstations have software compatibility with Sun Microsystems, Inc. networks; new financing packages to induce more sales and trade-ups; and packaged software and consulting services that complement hardware sales.

In January 1994, HP had positioned its Model 712 workstation as an ideal universal desktop that could access enterprise applications running on Unix servers. That strategy worked, but mostly for customer service applications that tapped multiple databases with low-end workstations, said Bernard Guidon, general manager of HP's Workstation Systems Division. The gain amounted to just a small slice of all workstation sales, he said.

HP's renewed engineering focus is a counterattack to the move by Sun—HP's workstation rival—to emphasize the commercial market, users and analysts said.

"They're getting back to their roots," said Doug Eltoft, president of the InterWorks, Inc. HP workstation user group and network operations director at the University of Iowa's engineering college in Iowa City. "They did an analysis of what was going on, and their commercial foray with workstations wasn't as successful as they had planned, so they are putting renewed emphasis on their historical base in the technical workstation market."

HP is trying to lure more engineering managers at large companies away from Sun toward HP for computer-aided design and software development.

Guidon said last month that the Empowered Engineering program is aligned around several large software categories, including mechanical computer-aided design, electrical computer-aided design and software development. HP is also targeting a variety of industry-specific market segments, including the oil industry, architectural engineering and medical visualization, Guidon said.

Other aspects of the company's plan include HP

workstation support for Sun's networking software, collaborative software to allow engineers to design in teams and new finance arrangements that encourage technical trade-ups.

"We have been putting quite a lot of investment into making the workstation product line able to interoperate with a Sun environment," Guidon said. That includes support for Sun's ONC+/NIS networking software and support for industry standard Distributed Computing Environment (DCE) software, which can link Sun and HP units into a single, unified network.

HP may be trying to repeat its success selling Unix servers through its 3-year-old mainframe-alternative program. With Sun rather than IBM being the rival in the workstation space, HP hopes to capitalize on another vendor's installed-base migration.

"What HP is doing is a take-off on their mainframe-alternative program but aimed at the engineering space," said Nina Lytton, president of Open Systems Advisors, Inc. in Boston. "They're targeting what they think is a forgotten level of corporate management—engineering managers." She said Guidon is an architect of HP's mainframe-alternative strategy.

## No effect expected

HP users who know of the plan said it may not change their buying patterns right away. Most said they buy when they run out of capacity or when the depreciation of their installed workstations has run its course. But they are just as likely to buy a Sun or Silicon Graphics, Inc. Unix workstation, provided it meets their project's technical requirements.

User needs, rather than workstation specs, determined the type of equipment Northrop Grumman Corp. purchased for a recent re-engineering project, said Joe Dugan, an independent consultant who helped Northrop Grumman install eight HP Unix servers and 220 workstations. "Those workstations were bought for a particular [business] focus, and we really defined the requirements," he said. Yet a large aerospace firm is the type of account HP counts on for volume sales of workstations in its bid to surpass Sun as the top worldwide workstation supplier, HP said [CW, Jan. 23].

But some users said HP's emphasis on providing an end-to-end solution was a factor that made HP hardware more attractive. At Black Clawson Co.'s Shartle Division in Middletown, Ohio, HP installed an open systems, high-speed 100M bit/sec. network—complete with routers—and supplied 30 HP Unix workstations and two Unix servers.

comi said. Future prices of \$300 to \$500 are indeed possible with advances such as Vivo Corp.'s software-based compressor/decompressors.

Of course, you need a 486-based or, some say, a Pentium-based PC to run that kind of software. Vendors claim the software can run in a 386-based PC, but "if you don't have a 486 PC with 66 MHz, it doesn't run as smoothly," Drummond said.

Despite all the perceived benefits, even true believers understand that desktop videoconferencing remains difficult to justify.

"People don't understand video... and what the visual image can do for you," Pawlak said.

At the same time, "five years from now, people will be working in ways they never dreamed of," predicted Joseph Caspar, principal scientist at United Technologies' Research Center. "And teleconferencing will be a part of it."

Stan Schatt

# Network managers live chaotic lives



Remember the good old days, the days of Ozzie and Harriet? The well-ordered and harmonious family life of the Nelson family was reflected in the IS workplace. The glass house of the data center had a place for everything and everything was, naturally, in its place.

Contrast that with today's network environment. The Nelson household has given way to the chaotic world of the Simpsons. Contrast the glass house manager of the early 1960s with the LAN manager of the 1990s.

George (it was always a man) was immaculate with his starched white shirt, narrow tie and short haircut. Dressed in a white lab coat, George was a scientist whose field was so esoteric that few could interpret the technical terms he sprinkled into his conversations with noncomputer employees.

Keeping up with product knowledge was relatively simple for George. He read one industry publication and depended on regular visits from his IBM account executive. If the system had any problems, help was as simple as one phone call away. George didn't have to worry about the future. There was bound to be a new mainframe down the road if his company continued to grow.

Fast-forward now to the '90s. LAN manager Lynn dresses casually because the job now requires hands-on tinkering, including a willingness to take apart a file server when necessary. Management no longer asks politely whether or not information is available. Instead, they demand a report and specify that it must be delivered within a couple of hours. The typical network manager's area is filled with spare network cards, assorted product literature and various printer and network operating system manuals, as well as assorted software that really needs to be tested and then installed.

## Problem after problem

A network console program is probably running and is tracking local and remote connections. Someone in Boston keeps trying unsuccessfully to log on while a local intelligent hub is reporting a bad Ethernet card. There are so many voice messages saved that the blinking light on the phone is solid red. The network manager's chair contains several handwritten notes as well as something unknown in the 1960s—yellow Post-it notes that are plastered all over the area, including on the monitor.

A one-vendor solution today is just a dream. The network manager is not sure who will take responsibility of interoperability problems that develop on a network that contains a Cisco router, a Bay Networks hub, Microsoft Word and Novell's NetWare network operating system.

Instead of having the telephone guy call the Bell company if a phone line is needed, the network manager must talk to a half-dozen vendors to narrow down the remote access options. Would fractional T1 be better than frame-relay service? Would a software router do the job at the branch office, or is a hardware solution preferable? Should ISDN be part of the solution?

Perhaps one thing hasn't changed. Remember how the glass house operated 24 hours a day, 365 days a year? Today's LAN manager seems to be working the same schedule. There is one key difference, however. It's just one long shift instead of three. Makes you feel kind of nostalgic, doesn't it?

Schatt is a LAN service director at Computer Intelligence InfoCorp in La Jolla, Calif.

# Videoconferencing

CONTINUED FROM PAGE 81

comes bundled with the computer. That will happen with teleconferencing, according to some analysts.

Either as an application or as part of the operating system, "video will become an integral part of PCs," said Alfred Riccomi, founder of Multimedia PC Systems, a Richardson, Texas, consultancy.

Of course, many users will substitute this basic functionality with higher quality packages. How much would they be willing to pay? Three hundred to \$500 is what most analysts say.

The current per-seat price is \$2,500, but the \$1,000 barrier will be broken before the end of the year, Ric-

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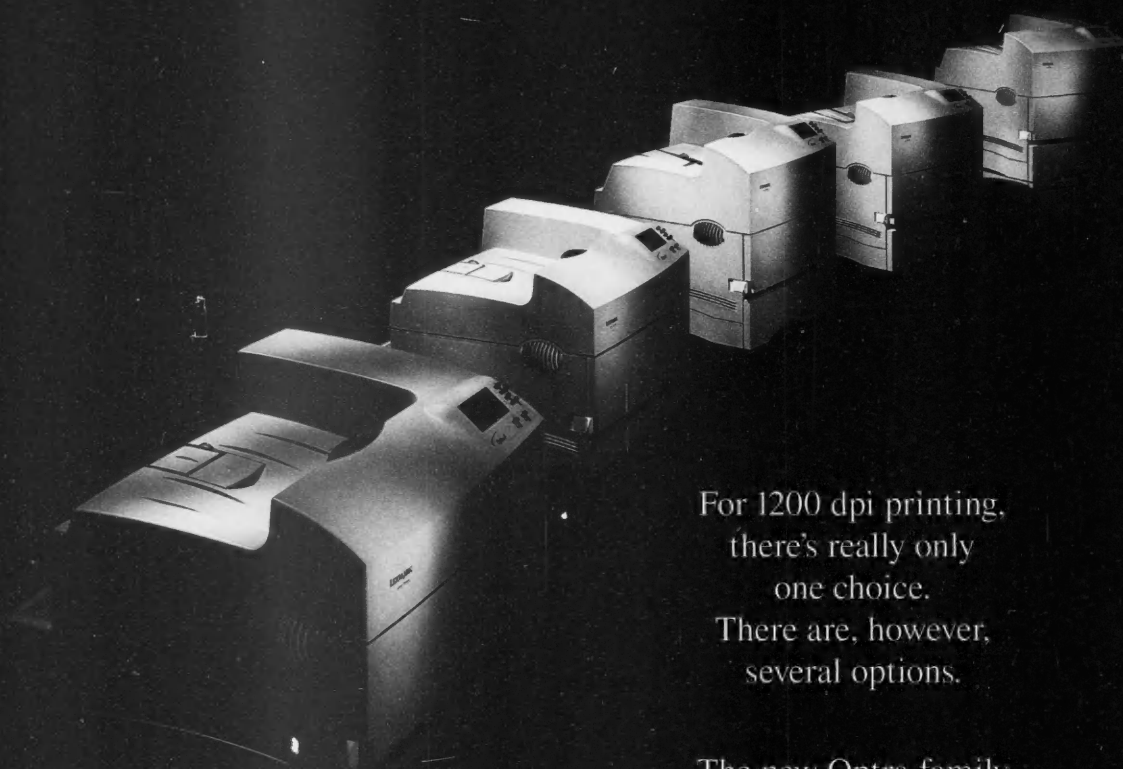
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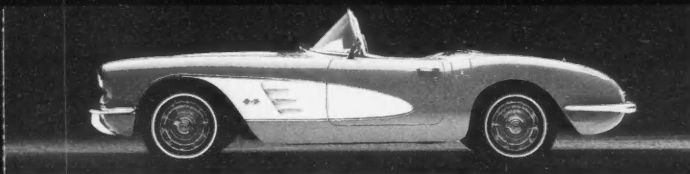
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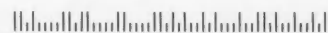


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## Workgroup Computing

### New Products

**NEC Technologies, Inc.** has announced the RISCserver 2200, a dual-processor workgroup server for Microsoft Corp.'s Windows NT.

According to the Boxboro, Mass., company, the RISCserver 2200 is aimed at the database transaction processing market and is based on two 200-MHz VR 4400 processors from Mips Technologies, Inc.

The system features a 32-bit Extended Industry Standard Architecture RAID controller with up to 64M bytes of cache, three SCSI-2 channels, 2G- and 4G-byte drives and up to eight hot-swappable drive bays.

Prices range from \$11,400 to \$25,000.

► **NEC Technologies**  
(508) 264-8000

**SunSoft, Inc.** has announced Novell, Inc. IPX/SPX protocol stacks as optional modules for its SolarNet software.

According to the Mountain View, Calif., company, the optional modules integrate with SunSoft's Solaris 2.4 Unix operating system.

The product lets PCs on Novell NetWare LANs access Unix applications running on Solaris Unix servers.

The optional module costs \$395.

► **SunSoft**  
(415) 960-3200

**TechSmith Corp.** has announced Enterprise Wide 2.5, client/server remote access software.

According to the East Lansing, Mich., company, Enterprise Wide 2.5 provides remote log-in and log-out in a single Windows session, faster file transfer speed and support for multiple concurrent network protocols.

The product provides users with access to Notes servers and optimizes the transport process between remote workstations and the LAN gateway to improve application responsiveness.

The software is based on Novell, Inc.'s Multiple Link Interface Driver architecture and supports Novell's IPX burst mode.

Prices start at \$2,495.

► **TechSmith**  
(517) 333-2100

**Software Partners, Inc.** has announced Re:mark, a software add-on to Adobe Systems, Inc.'s Acrobat 2.0.

According to the Mountain View, Calif.,

company, Re:mark lets users mark up and review documents in a workgroup setting. Users can distribute electronic documents in Adobe's Portable Document Format (PDF), edit on draft PDF files and return the copy to the originator.

Features include free-form ink drawing, highlighting, strikeout, underlining and pop-up comments. Pictures, bit maps, sound files, movies, spreadsheets or text files can be attached to the document, according to the company.

Re:mark costs \$129.

► **Software Partners**  
(415) 428-0160

**Applied Systems Engineering, Inc.** has announced Robofax Pro Lite, on-demand fax software.

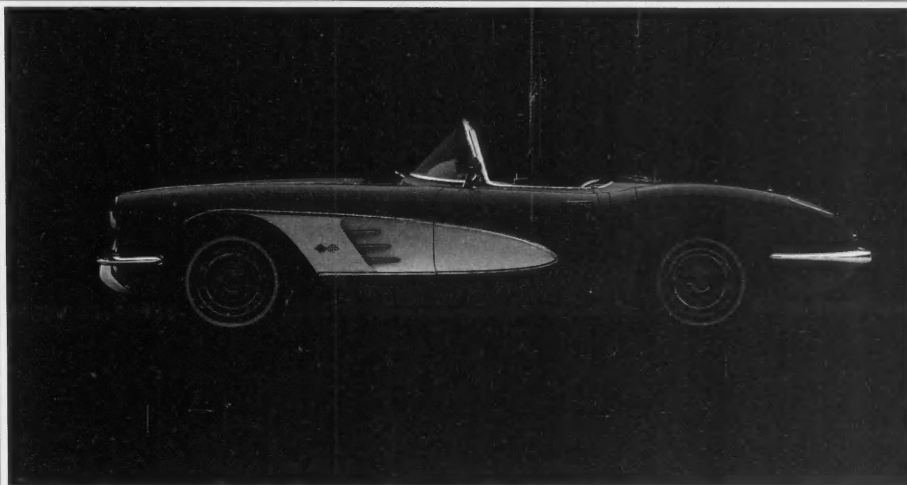
According to the Sunnyvale, Calif., company, Robofax Pro Lite provides single-line fax-on-demand services. Users can scan in documents, fax directly to

Robofax or convert Windows documents with Delrina Corp.'s WinFax Pro.

Features include password protection of documents and a smart dialing feature that automatically adjusts for the new North American Numbering Plan method of dialing numbers.

Robofax Pro Lite costs \$795 for software, voice/fax board, microphone and speaker.

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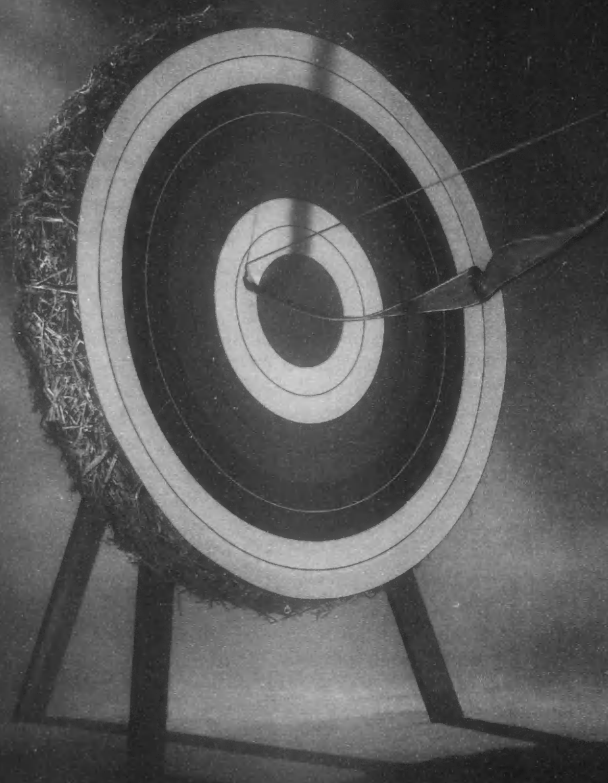
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## Electronic commerce

# EDI's move to prime time stalled by cost perception

By Suruchi Mohan

The reliance of large companies on electronic data interchange (EDI) for about a decade makes it appear that the technology is deeply entrenched. But in reality, many users are still debating whether to take the giant leap from conventional business practices to EDI.

This was the refrain heard at the Financial EDI conference held recently in San Jose, Calif.

Of the 5 million to 6 million companies in the U.S. with revenue of more than \$1 million, only about 80,000—or less than 1%—use EDI, said Torrey Byles, director of EDI at BIS Strategic Decisions in Santa Clara, Calif.

Factors holding back the proliferation of this technology include the following:

- Perceived high cost of implementation, with no immediate quantifiable return on investment.
- End users' and customers' continued reliance on paper-based methods.
- Lack of smooth integration with legacy systems.
- Alternatives to EDI offered by electronic commerce.

Although the cost of setting up a PC-based EDI system is only around \$5,000, "in some cases there is little compelling evidence of a return on investment," Byles said. At the start of an EDI project, a company will spend rather than save money, he said.

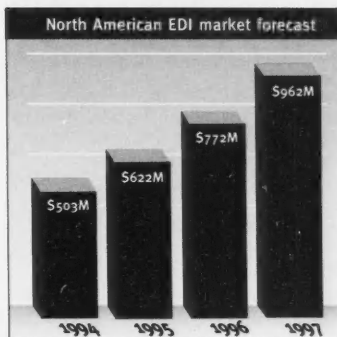
"Is EDI the best way for us to do business?" asked Mary Healy, senior treasury analyst at Brinker International, a restaurant chain based in Dallas. She said she attended the conference to see what resources her company would need to implement EDI. Although it might be easy to justify the cost eventually, the initial setup cost would factor into the company's decision, she added.

### Paper appeal

Mind-set is another factor inhibiting the growth of the EDI market. "Small customers still want to write checks," said John Connell, vice president at The First National Bank of Chicago.

The bank has created a system whereby customers can call in using a Touch-Tone phone or a PC to enter business information on the bank's computer. The clients, therefore, do not have to implement EDI in their organizations, and the bank does not have to deal with paper.

Further, implementing EDI in an organization requires re-engineering the business processes, which is always painful, Byles said. Also, "EDI spans many departments, [which]



Source: BIS Strategic Decisions, Norwell, Mass.

leads to turf wars," he said.

Some of the traditional problems with EDI still remain. It is hard to use EDI with some legacy systems, according to Jim O'Malley, financial EDI manager at Motorola, Inc. in Wood Dale, Ill. "There are too many legacy systems that don't support EDI," he said. That is one of the reasons the technology has limited penetration, O'Malley said.

Although it can be argued that an EDI-enabled PC attached to a mainframe is an inexpensive solution, that is not the only issue with this approach. Legacy systems do not allow cross-referencing, O'Malley said, which is very important in EDI. Nor does EDI lend itself well to integration with different applications.

### Interaction is tricky

Also, as much as EDI is a standard, there is a lot of variety in the implementation, which makes interaction harder, O'Malley said. "It is harder to set people up," he said.

This is true not only because of the standards issue but also because of the new possibilities of doing EDI, Byles said. For example, some companies want to experiment with the Internet home pages before they implement traditional EDI. Or they want to try new software that substitutes for EDI.

EDI could certainly use a little more business traffic. Health care would be a prime area, said Donald Schnoor, a product manager at Boatmen's First National Bank in Oklahoma City. But here, too, there is little penetration.

According to a study published by BIS Strategic Decisions in 1993, the health care industry purchased \$28 million of gear to develop EDI in-house. But in the same year, health care concerns outsourced \$300 million of EDI services.

# Microsoft girds for server launch

SMS 1.1 will be integrated with Windows 95

By Laura DiDio  
REDMOND, WASH.

Microsoft Corp. is putting the finishing touches on enhancements to its Systems Management Server (SMS) that, among other things, will make it fully interoperable with Windows 95. The server will also feature setup query scripts to aid businesses in migrating to the new operating system.

These features are due out in SMS Version 1.1, which Microsoft executives said will be delivered in the third quarter.

SMS 1.0, code-named Hermes, was introduced last November to help users more effectively manage their desktop hardware and software. By automating tasks such as inventory and software distribution, SMS reduces time and labor, according to Phil Holden, SMS program manager at Microsoft's Business Systems Division.

### What it will offer

The new features and enhancements will include the following:

- Support for IBM's OS/2 Warp and LAN Server 4.0.
- Remote control and software distribution to branch offices.
- Enhanced query scripts that will offer businesses smooth migration to Windows 95.

The current version of SMS — 1.0 — supports the major LAN network operating system environments, including Microsoft's Windows NT Server 3.5 and LAN Manager, Novell, Inc.'s NetWare 3.x and 4.x, IBM's LAN Server and Digital Equipment Corp.'s Pathworks. SMS also works with the major desktop operating systems, including MS-DOS, Windows 3.1, Windows for Workgroups, Macintosh and OS/2.

"We're currently targeting a third-quarter ship date for SMS 1.1, and we may tie the release to [the debut of] Windows 95 or the

Exchange Server," Holden said.

The availability of enhanced query scripts will be of particular help to network administrators in their upgrade to Windows 95. The scripts will show them which desktop PCs can be automatically upgraded to the new operating system based on existing memory and disk space and which PCs may need to be upgraded, Holden said.

This means network administrators "won't waste a lot of time with unsuccessful installation attempts" or spend "countless hours" determining the problems, Holden said.

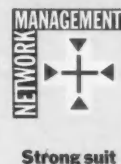
Users and analysts agreed.

Bob Bowman, chief information officer at Deaconess Health System in St. Louis, has a staff of about 50 who support more than 1,000 users on 20 servers. Deaconess recently installed NT Server 3.5. Bowman said SMS was instrumental in a smooth installation and cost savings.

"NT Server makes my life much, much easier, and SMS makes management much easier. With SMS 1.1, I'll be able to upgrade desktop applications remotely. That means I don't have to add extra staff. It can save us about 30% in staff costs and manpower hours and makes Deaconess operationally more efficient," Bowman said.

Rich Edwards, an analyst at Robertson, Stephens & Co. in San Francisco, said in a recent report that add-on management packages such as SMS, SQL Server and SNA Server are fueling the strong momentum for products in Microsoft's Business Systems Division.

"The strong momentum of Windows NT Server is a given for 1995. Windows NT Server sales have exploded since the release of 3.5 last fall, along with the initial components of the BackOffice suite like SMS, SQL Server and SNA Server. These are must-have items for businesses," Edwards said.



Since it began shipping last November, Microsoft's SMS has garnered an installed base of more than 500 businesses. It is especially strong among banking and telecommunications concerns.

# NetWare LANs get link to the Internet

By Ellis Booker

Like fish at the point where the sea meets the river, users of Novell, Inc.'s NetWare have been barred from easily crossing from their LANs to the Internet.

The barrier reef has been incompatible protocols: NetWare's native IPX vs.

the Internet's TCP/IP.

LAN administrators with no Unix systems in their shops have had just two choices: Install a dedicated Unix server or equip every PC with its own TCP/IP software, high-speed modem and Serial Line Internet Protocol dial-up connection to the Internet.

But this second approach is a stopgap at best and could be an administrative nightmare, said Cheryl Currid, president of Currid & Co., a technology advisory and analysis firm in Houston. Centralized, supported systems for providing Internet access to LAN users are badly needed, she added.

"LAN administrators face the prospect of having 28K bit/sec. modems on every desk ... because users want to get out," she said. "It'll be the same crisis we had with individual fax machines."

Novell is reportedly at work on a server-based solution for TCP/IP access, but details have yet to be released by the Provo, Utah, company.

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Computerworld

#### Command performance

Meanwhile, third-party vendors are filling the gap.

Earlier this month, Performance Technology in San Antonio announced a LAN-to-Internet connectivity product. This is among the first of what analysts say will be a rolling market for such solutions.

Performance's Instant Internet is a LAN client that attaches to the Internet on one side and a Novell LAN or Performance PowerLAN on the other. The system supports modem connections up to 28.8K bit/sec. or router connections up to T1 speeds. Instant Internet works on Ethernet, Arcnet or Token Ring LANs and supports as many as 50 concurrent users.

"The beauty is you don't have to add a TCP/IP stack to the clients on the LAN or worry about IP addressing," Performance President Paul Finke said. A side benefit of the system, Finke added, is a native firewall: Internet users can access only the Performance box and none of the other nodes on the IPX LAN.

"The dilemma for NetWare networks has been the need to put in a Unix box or futz with [NetWare Loadable Modules]," agreed Mike Ballard, an independent consultant in Potomac, Md., familiar with the Performance product.

"The surface of the NetWare world is just being scratched relative to the Internet," Ballard said.

While Performance's system supports Winsock 1.1-compliant software applications, it comes bundled with some Internet client software, such as the following:

- WinWeb, the free, graphical browser for the World-Wide Web from EINet in Austin, Texas.

- Eudora electronic-mail client.

- A file transfer protocol client, a gopher client and a news reader.

Version 1.0 of Instant Internet is scheduled to ship next month for \$3,495 for a single LAN license. Performance will also offer a monthly lease option.

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The Messenger of Information Systems Management  
September 5, 1990, Vol. 18, No. 36, 36 Pages, \$6.00/yr. Sub/Year

## COMPUTERWORLD

### Object standards accelerate

Microsoft blesses emerging standard IBM pulls mainframe into new development role

**To IBM's credit:** In early October, IBM will roll out several object-based tools designed to finally and fully render the mainframe its proper place in the development process.

The company plans to announce versions of C++ and other object-oriented languages and an object-oriented version of IBM's DB/2 database management system, according to sources within the IBM. The company will also announce a new version of its Application Programming Language (APL). This announcement is tentatively scheduled for late 1990.

Along the way, the company's information systems group has been examining early versions of the products, mostly before they give IBM the best chance of making the desired move of cross-platform application development.

**IBM, page 14**

### Success strains SAP Support

**To SAP's credit:** International 34 SAP announced that Pacific Coast & Electric Co. (PCE) had signed an \$8 million contract for 25 SAP licenses.

PCE, which has been using SAP for a number of years, is now looking for other companies and is expected to add other SAP licenses in the near future.

**SAP, page 14**

### All clears for telecommuting

**To IBM's credit:** IBM is the accelerator on those fledgling plans for a telecommuting program.

By the way, IBM's larger companies in the nation's largest cities have a plan for testing employees commuting by carpooling with the latest trend in car sharing.

The program will be tested in at least 10 offices in major metropolitan areas in Los Angeles, San Francisco, Chicago, Boston, Philadelphia, Dallas and the New York/New Jersey region.

**IBM, page 14**

### COMPUTERWORLD'S EIGHTH ANNUAL SALARY SURVEY

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**Salary Survey, page 14**



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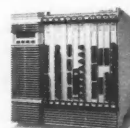
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# Workers slow to accept telecommuting

By Mitch Betts

A national survey of U.S. workers shows they like the idea of telecommuting but are skeptical about getting the information, documents and equipment required to get their jobs done at home.

Analysts and technology managers said that may be because the workers are unaware of technologies — such as the marriage of Integrated Services Digital Network (ISDN) and document imaging — that can give telecommuters equal access to corporate documents and data.

The survey "reflects misinformation rather than reality," said Gil E. Gordon, editor of the "Telecommuting Review" newsletter in Monmouth Junction, N.J. "Telecommuting doesn't succeed automatically. It does require some planning for information flows."

The poll by CBD Research & Consulting, Inc. in New York showed that 38% of those surveyed doubted they would "have access to the information and records I need." About a third said they could not do their job at home — period.

The survey sample was small, however. Half of the 356 respondents were white-collar workers and the other half

were blue-collar workers not likely to be able to telecommute.

Meanwhile, firms such as Consolidated Edison, Inc. and Empire Blue Cross Blue Shield, both in New York, are cranking up pilot programs that give telecommuters the same access to customers and documents that office workers have.

## Customer service from home

At Con Ed, three customer service representatives now handle their regular duties — responding to customer phone calls and correspondence — from home. IBM's CallPath computer-integrated telephony software routes customer calls to the telecommuters, while correspondence is delivered by imaging and workflow software from New York-based Sigma Imaging Systems, Inc.

In essence, the telecommuter links up to the company LAN and fetches the next available task, said Ed Glistner, senior project manager in the customer operations unit. The only differences between in-house and remote users are remote users have ISDN connections and larger PC hard disks to hold more software, he said.

Later this month, Empire Blue Cross Blue Shield will begin testing the viability

of telecommuting technology for health insurance claims examiners who transcribe data from document images into a mainframe database. The pilot will in-

"It's a heads-down, data-entry job, so we have to make absolutely sure there is no reduction in productivity before we send them home," she explained.

In both cases, the ISDN Basic Rate Interface service is provided by Nynex Corp., New York's regional telecommunications carrier.

Glistner and Williams said the key to Sigma's workflow system is that while a telecommuter is working on one document, it fetches a second and third document image into the telecommuter's in-box. The result is that images are transferred over ISDN lines with no waiting required.

## Drawing the line

Glistner said Con Ed will also study the management, legal and union issues surrounding telecommuting. The national poll highlighted another common concern: that telecommuting makes it hard to draw the line between work and home life.

Telecommuters must have the self-discipline to "turn off work and rejoin their personal life already in progress," Gordon said.

### Telecommuting traffic jam

A national sample of employees identified the Top 3 disadvantages of telecommuting:

I would not have all the equipment and supplies I need	44%
I would not have access to the information and records I need	38%
It would be harder to separate my work time from my personal time	36%

BASE: 356 RESPONDENTS (MULTIPLE RESPONSES ALLOWED)

Source: CBD Research & Consulting, Inc., New York

volve 16 workers, each processing an average of 250 documents per day using Sigma's imaging and workflow system.

Initially, Empire's pilot will keep the 16 workers in their regular offices, but they will be hooked up to the ISDN lines as though they were telecommuters, said Gillian Williams, director of advanced technologies at Empire.

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# Shiva enters remote ISDN territory

By Suruchi Mohan

■ **Shiva Corp. recently joined the growing ranks of companies that provide Integrated Services Digital Network (ISDN) access to remote sites.**

Shiva did so via a technology agreement with Sonix Corp., which is based in the UK. Under terms of the agreement, Burlington, Mass.-based Shiva and Sonix will codevelop a Basic Rate Interface (BRI) ISDN card for Shiva's LANRover/Plus remote access servers.

Under Shiva's plan, the ISDN connection will offer the following features:

- Access to all resources on a LAN.
- Access to the Internet and other on-line services for LAN users in an organization.
- The ability for branch offices to dial one another.

While Shiva is a newcomer in this arena, other companies have been in the business of remote access ISDN for about a year. They include Ascend Communications, Inc. in Alameda, Calif., Dynatech Communications, Inc. in Woodbridge, N.J., and UUNet Technologies, Inc. in Fairfax, Va.

So far, users who have adopted this

technology report positive results. Anne McKereghan, controller at The Stephens Group, Inc., an advertising agency in San Jose, Calif., implemented an ISDN connection to the Internet early this year. Although it is too soon to quantify the benefits, McKereghan said the benefits of image speed and clarity "will offset the costs."

#### Price still too high for some

Mani Chhabra, who has had BRI ISDN for six months, agreed. Chhabra, who is software manager at BioMed Datis Corp., a health care information service in San Mateo, Calif., said it is a "very economical way to go for small to midsize companies that cannot afford T1 lines." He added, however, that for users who want to use ISDN as an efficient way of telecommuting, the entry point of approximately \$1,000 per user is still too high.

Setting up a BRI ISDN connection at home, with one or two channels, requires the installation of an ISDN line. This might cost \$50 to \$100. A terminal adapter ranging in price from \$595 to \$995 is also required for each home connection, according to Barry Gilbert, president of Metric Technologies in Ashland, Mass. Telephone hookups can range from \$30

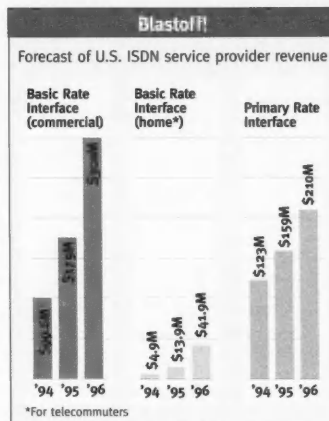
to \$100 vs. \$15 to \$30 for a regular dial-up line.

Getting the ISDN line from the telephone company can be a big challenge, said Tom Nolle, president of CIMI Corp. in Voorhees, N.J. This is a twofold issue, he said. In some residential neighborhoods there are "islands" of ISDN lines where small areas that have ISDN hookups are surrounded by areas that do not.

The second challenge is actually ordering the line from the phone company, Nolle said. Many times, would-be ISDN customers reach an operator who knows little about ISDN. When repeated calls do not yield a knowledgeable person, some users give up in disgust.

This ineptitude on the part of the regional Bell operating companies is partly to blame for the slow growth of the ISDN market in the U.S., Nolle said.

Another factor is that Internet service providers charge more for ISDN access than for 14.4K bit/sec. access. For example, when UUNet makes its ISDN service for the Internet available to individuals, it will charge a little more for the service,



Source: Metric Technologies, Ashland, Mass.

a spokesman said. Prices have not yet been set.

Another problem is that BRI ISDN is great for file transfers but does not work as well for Telnet. This is because a 56K bit/sec. line brings information onto the screen very rapidly, and the screen moves too fast for users to follow.

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## New Products

**Ascend Communications, Inc.** has announced Pipeline EtherFrame, an Ethernet-to-frame-relay access router, and EtherFrame, software for Ascend's Max wide-area hub.

According to the Alameda, Calif., company, Pipeline EtherFrame lets remote users access corporate networks and the Internet. The router comes standard with internal channel and data service units and two independent 56K bit/sec. channels.

EtherFrame software lets Max hubs support frame relay along with analog, Integrated Services Digital Network switched and leased-line traffic. The hub can also act as a frame-relay wide-area gateway for local and long-distance carriers and Internet providers.

Pipeline EtherFrame costs \$1,695, and EtherFrame costs \$1,000.

► **Ascend Communications**  
(510) 769-6001

**Network Resources Corp.** has announced the MultiGate Switch, an Ethernet switching hub.

According to the San Jose, Calif., company, the MultiGate Switch operates at 10M bit/sec. on 12 Ethernet ports and provides a high-speed uplink for connection to a server or backbone.

tion to a server or backbone.

The ports can be occupied with any mix of 10Base-T, 10Base-2 and 10Base-F modules. Users can install the switch for Ethernet media, routing and network management.

Prices start at \$7,995 for a base unit.

► **Network Resources**  
(408) 383-9300

**Adaptec, Inc.** has announced 10 Asynchronous Transfer Mode (ATM) network interface cards.

According to the Milpitas, Calif., company, the cards operate at 155M bit/sec., come bundled with AT J communications software and include a protocol conversion feature that lets non-ATM traffic traverse ATM networks. The cards come in three styles: Server/High Performance, for network servers and corporate computing resources; PowerDesktop, for departmental servers and workstations; and Desktop25, for PCs.

Prices range from \$349 to \$995, depending on whether the systems are based on Peripheral Component Interconnect bus, SBus or IBM's Micro Channel Architecture.

► **Adaptec**  
(408) 945-8600

**Frontier Software Development, Inc.** has announced Netscout Manager 3.3, with support for monitoring network

traffic generated by specific applications such as Mosaic, Lotus Development Corp.'s CC:Mail and Notes and others.

The Chelmsford, Mass., company said Netscout Manager 3.3 can be used to track LAN and WAN bandwidth use by application and by department or user.

It costs \$3,995 for Ethernet and up to \$4,995 for WAN monitoring.

► **Frontier Software Development**  
(508) 851-5700

**Cross International Corp.** has announced Netpage, a paging system for Novell, Inc. NetWare and NetBIOS PC networks.

According to the Boulder, Colo., company, Netpage lets users send one or more lines of information that will appear on the bottom of all user screens. This can include multicolor flashes, beeps or WAV music files for high-priority messages.

Users can also send a note or telephone number to a pager from the desktop. The product can record the date and time of each message in a master file for administrative purposes.

Prices range from \$99 to \$299, depending on the number of users.

► **Cross International**  
(303) 440-7313

**Micom Communications Corp.** has announced the NetRunner Integration

Router (I-Router) family of routers.

According to the Simi Valley, Calif., company, the I-Router family features IP/IPX routing and integrates remote Ethernet LAN traffic with voice, fax and legacy data over 9.6K and 128K bit/sec. connections.

The routers are configured for traditional multiprotocol routing, with optional toll-free voice and fax integration. The products learn all network addresses and optimize use of wide-area bandwidth.

Prices range from \$2,450 to \$12,000.

► **Micom Communications**  
(805) 583-8600

**Informer Data Security, Inc.** has announced Secure Access Management software (SAM) 2000 2.0, security software.

According to the Garden Grove, Calif., company, SAM 2000 2.0 includes a switching capability that lets calls be routed from a pool of modems to the appropriate network services.

Features include real-time audit trails, password aging, tracking of the number of log-on attempts and temporary user profiles.

SAM 2000 2.0 comes in 8-, 16-, 32-, 64-, 128- and 256-line versions, with prices starting at \$400 per line.

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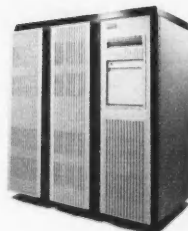


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## HDS follows IBM's lead with tape library

By Craig Stedman

■ Hitachi Data Systems Corp. is starting to march to its own drummer in the mainframe disk storage market. But when it comes to a new line of tape libraries, HDS is sticking closer to IBM's tune.

The RAID disk array HDS introduced this month goes far beyond any imitation of IBM [CW, Feb. 13]. But the company is pitching a pair of automated tape devices, also introduced this month, purely as plug-compatible alternatives to IBM's 3495 and 3494 libraries. HDS is taking this tack even though IBM is only a distant second in library sales to Storage Technology Corp. in Louisville, Colo.

Due to ship in the second half of the year, the HDS Media Manager series will piggyback on IBM's storage management software.

"As far as the mainframe is concerned, it will be talking to an IBM subsystem," said Ken Spear, director of storage systems marketing at HDS in Santa Clara, Calif. HDS will use claims of higher performance and its fault-tolerant design, which includes dual robots on the high-end library, as selling points against IBM, he added.

### Mainframe boundaries

However, the emulation approach will limit HDS's potential audience in the mainframe market. IBM did increase its share of mainframe library shipments from

9% in 1993 to 20% last year, but StorageTek — which provides its own tape management software — was still the dominant vendor with a 66% share, according to International Data Corp. in Framingham, Mass.

First Security Corp., a banking company in Salt Lake City that uses HDS disk subsystems, has been impressed with their reliability. But the bank's tape storage is handled by a pair of StorageTek silos that are being upgraded to 36-track drives, said Erik Jensen, vice president of computer operations at First Security's information technology unit.

### Measuring up

HDS's high-end Media Manager 7450 library maxes out at 52 ft. in length, while IBM's 3495 requires 92 ft. in its full linear sprawl. However, IBM can fit 18,000 cartridges into its big library, compared with about 8,700 for HDS. IBM would be in the 60-ft. range at that smaller capacity.

"The chance that we would switch would be minuscule," Jensen said. First Security uses IBM's Data Facility Storage Management Subsystem (DFSMS) software for managing disk operations, but it relies on StorageTek's Host Software Component code on the tape side, Jensen added.

### The bright side

On the other hand, the DFSMS support built into HDS's Media Manager libraries could be a point in HDS's favor at Pizza Hut, Inc. in Wichita, Kan. Pizza Hut may look at bringing in its first automated libraries at year's end, and it also is moving to implement DFSMS throughout its data center, said Lyle Myers, a senior systems programmer at the PepsiCo, Inc. subsidiary.

"Right now, we have several sets of rules that manage

### The book on Media Manager

HDS's new tape library offering includes the following features:

	MEDIA MANAGER 7430	MEDIA MANAGER 7450
Maximum number of cartridges	3,016	8,751
Tape drives	1 to 8	4 to 32
Control units	1 to 4	2 to 8
Cartridge mounts per hour	200	400
Scheduled availability	Fourth quarter	Third quarter
Starting price	\$90,000	\$275,000

our storage, and it's hard to keep track of all of them and get them to fit together," Myers said. Pizza Hut, which has 180G bytes worth of HDS disks in place, hopes to see some good price competition between IBM and HDS on the library front, he added.

HDS is entering the library market eight years after StorageTek and almost three years behind IBM, making it "difficult to come out with something different than what's already out there," said Fara Yale, an analyst at Dataquest, Inc. in San Jose, Calif. Parent company Hitachi Ltd. already sells proprietary libraries with a linear design similar to IBM's in Japan, and retrofitting those to support MVS and DFSMS was the easiest path into

HDS, page 104

## Middleware gives Chase unified view of customer data

By Thomas Hoffman

Until recently, retail banking functions at The Chase Manhattan Bank NA were organized around its lines of business such as mortgage, credit card and auto financing. That approach, however, effectively stymied customers seeking one-stop banking across multiple products or services.

For example, a customer of the New York-based bank could call one of Chase's three regional telephone centers for an update on his checking account balance, but he had to place a separate call to Chase's credit-card unit to get information on his credit limit.

### Bringing it together

"It was very difficult to get information out of the vertically integrated systems [because] the data was so tightly coupled to each unit," said Michael Levine, vice president of regional banking systems at Chase's New Hyde Park, N.Y., office.

In response, Chase has melded its dis-

parate systems together through a middleware technology project called Fusion. The project — expanded to include a redesigned workstation interface for Chase's branch service representatives — was launched last June as part of a broader customer service enhancement program.

Prior to the Fusion project, Chase had invested \$20 million in IBM PS/2 PCs and servers for its 300-plus branches in the Greater New York area in a project called MetroLAN. The MetroLAN effort did allow branches to communicate seamlessly with one another through a standardized network. However, customer service reps were still unable to extract credit card and other account information from the IBM DB2 and other databases housing nonbranch data at its regional data center in New Hyde Park.

So after examining a range of middleware options, the bank decided to purchase MDP (message-driven processor) from Early Cloud & Co. in Middletown, R.I. The package was de-

signed to pull legacy data from disparate systems. "What Early Cloud gave us was the ability to decouple data from the databases," Levine said.

Although Chase is not the first bank to push ahead with virtual banking services for its customers, it appears to have a leading-edge middleware approach, industry analysts said.

### Keeping it connected

"There is a tremendous amount of interest in one-stop shopping in the banking industry right now," said Andrew F. Mayer, a senior manager in the financial services industry consulting practice at Ernst & Young in New York.

Mayer said the one-stop shopping craze, at least in financial services, has been driven primarily by leading-edge brokerages and mutual funds groups such as Boston-based Fidelity Investments Co. and New York-based The Dreyfus Corp., a subsidiary of Mellon Bank Corp. in Pittsburgh.

The Early Cloud software complies

with IBM's Messaging Queueing Series, which is a messaging architecture for intersystem communications. Because of this compliance, Chase has avoided the need to make major modifications to its legacy systems. These included IBM

CICS applications that run on Amdahl Corp. and IBM ES/9000 mainframes, Levine said. Instead, Early Cloud's MDP was designed to enable CICS software to act as enterprise servers of on-line transaction processing data.

Last March, Chase began installing Early Cloud under a client/server configuration between its telephone center and branch databases. By September, Chase had completed real-time data links between its telephone centers, branches and private banking units.

It would have taken Chase up to two years to install separate interfaces between each of the disparate systems, Levine estimated. Instead, the fusion of Chase's private and branch banking activities, with the Early Cloud package, took only six months.

### Linking up

Based on the early success of its private banking middleware project, Chase is considering a similar scheme to link its dozen IS systems to one another.

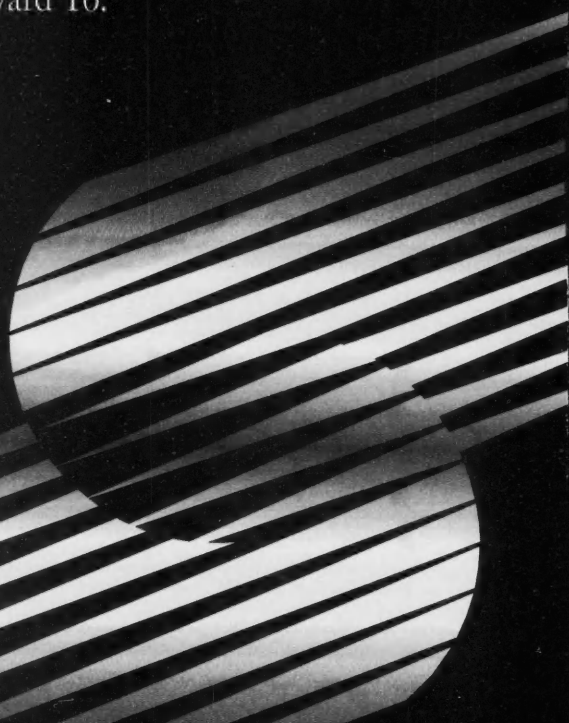


Chase's Michael Levine says MDP lets the bank decouple data from the databases

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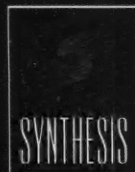


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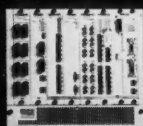
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# Massachusetts drives 'motor voter' system

## State implementing statewide voter-registration network

By Mitch Betts

While a handful of states are stubbornly resisting the federal "motor voter" registration law, Massachusetts is forging ahead with an ambitious, \$5.2 million statewide system to implement the statute.

Under the National Voter Registration Act, which went into effect this year, states must allow citizens to register to vote when they get their driver's licenses renewed or obtain welfare benefits.

California, Illinois, Pennsylvania and South Carolina are opposed to the law, in part because they see it as an "unfunded mandate" from Washington that they cannot afford. The U.S. Department of Justice has sued all four states for refusing to comply.

On the other hand, some states already have exemplary systems, making it easier for citizens to register to vote, said Rebekah Even-son and David Plotkin, analysts at Human Serve, a New York-based campaign for voter registration. They cited Kentucky, Georgia, Oregon, Texas and Washington state as having excellent voter-registration systems and tagged Massachusetts as an up-and-comer.

Last October, the Massachusetts Secretary of State's office awarded a three-year, \$7.6 million contract to Unisys Corp. to build a "central voter registry."

### Some motoring, some braking

Thirty-six states are implementing "motor voter registration" systems, while a handful are resisting the change for political reasons



Source: Human Serve voter registration campaign, New York

It will feature a direct communications link to each of the commonwealth's 351 towns and cities.

Key architectural components include a Unisys U6000/550 midrange system as the host, Oracle Corp.'s Oracle 7 database software and Nynex Corp. frame-relay links to PCs installed in each town hall.

Robert Moriarty, project manager for the Central Voter Registry Information System in Boston, said the state has an aggressive timetable for rolling out the system. First, the system will be tested in six towns and then in 20 towns. "We'll bombard the system [with an excessive workload] and try to get it to crash so we can see where the problems are," he said.

An additional 40 towns and cities per week will be added so that all 351 will be on-line by July 1. Massachusetts will then be ready for the expected onslaught of registrants expected for the presidential primary in March 1996, Moriarty said.

In essence, the state will have a single voter registration database available for real-time updates in every town, he said. Furthermore, the voter database and the network can be used for other applications, including a statewide census and jury-selection pools.

Moriarty said the price tag for design and installation was \$5.2 million; annual operating costs will be \$2 million. Running a paper-based "motor voter" system would have cost \$6 million a year and "would have been a nightmare," he added.

## HDS follows IBM tape library lead

CONTINUED FROM PAGE 101

the market for HDS.

Demand for the high-end 7450 Media Manager will likely be modest because demand for big libraries is flattening out, according to Yale and Paul Wolfstaetter, an analyst at Gartner Group, Inc. in Stamford, Conn. But the smaller 7430 model could be more successful as

a library for low-end mainframes and midrange systems. "No one has a lock on that market yet," Wolfstaetter said.

### Additional support

HDS plans to start adding support for

the AS/400 and various Unix systems to the 7430 later this year as part of a push into nonmainframe storage markets that will also include its disk arrays, Spear said. "Our strategy is to walk before we run," he added. "We're starting out in markets that we know, but we can't grow without expanding beyond the mainframe."

"As far as the mainframe is concerned, it will be talking to an IBM subsystem."

— Ken Spear  
HDS

## RedWood branches out

**S**torage Technology Corp. is hoping to persuade more corporate users to hug its RedWood than it originally let on.

StorageTek had painted RedWood—a new high-capacity tape drive supporting cartridges of up to 50G bytes—as a niche product aimed at government security agencies and seismic processing concerns.

But the Louisville, Colo., company widened its marketing vision to include LAN backup, imaging, multimedia and other commercial applications when it introduced RedWood

this month.

At \$162,000 for a single drive with Escon support, RedWood is three to four times more expensive than conventional 3490 technology, acknowledged Rob Niebohr, director of tape storage marketing at StorageTek. He added that commercial shops are not likely to buy more than a handful of RedWoods for storing their largest data sets.

But the helical-scan recording technology used by RedWood was less damaging to the tape in testing than expected, leading StorageTek to view the high-capacity device as useful "for more

than just lunatic-fringe things," Niebohr said.

Fara Yale, an analyst at Dataquest, said StorageTek is getting "very creative" in trying to expand RedWood beyond its original niche. However, RedWood's commercial success will depend in part on when IBM ships its much-publicized New Technology Prototype (NTP) high-capacity drive "and what features it has," she added.

IBM is working on a capability that would allow users to stack multiple logical tape volumes on a single NTP drive, but that is not expected to be included when the MVS version of the product is ready for shipment late this year [CW, Feb. 6].

—Craig Stedman

## Briefs

### CA seals several licensing deals

Computer Associates International, Inc. has announced several significant licensing contracts it has landed in recent weeks. L'Oreal S.A., the Clichy, France, cosmetics group, has announced it will standardize on CA-OpenIngres as its relational database management system on Unix servers and CA-OpenRoad for its client/server application development environment.

In a separate contract, the South Australian state government has standardized on CA-Masterpiece/2000 for all of its client/server financial analysis needs as part of a recent five-year, multiplatform license agreement. In unrelated contract wins, CA has reached a multiyear license agreement for its CA-ManMan/X manufacturing package with TRW, Inc.'s Raack & Pinion Division in Rogersville, Tenn. CA also signed San Jose, Calif., information services provider Litton Computer Services to a worldwide enterprise software agreement. Terms of the contracts were not disclosed.

### ISSC signs outsourcing deal

IBM's Integrated Systems Solutions Corp. subsidiary entered a 10-year, \$100 million contract with Minneapolis-based Ceridian Corp. Ceridian provides payroll, tax filing and human resources services to corporate customers including IBM. The contract calls for IBM to provide payroll processing for Ceridian and for the two companies to jointly market Ceridian services.

### Mexicana Airlines goes Unisys

After a five-month stint on British Airways' IBM-based reservations system, Mexicana Airlines has decided that it will convert back to Unisys Corp.'s USAS reservation system.

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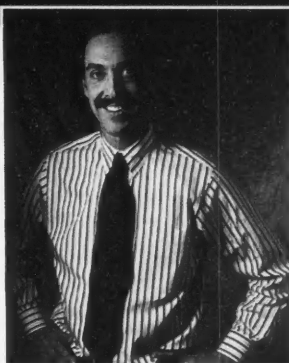
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# "The Computer Press Association Awards Committee has decided to appeal to a higher authority: You."

Nearly all editorial awards are decided by committees of experts who sit and review entries and use their best judgment to decide which publication or article is best. There is nothing wrong with this process — and it has certainly produced many awards for *Computerworld* — but, frankly, the opinions of our readers are more important to me than the opinions of experts. It is readers, after all, who are best able to judge the quality and usefulness of the material they read. And it is readers — not experts — for whom we write.

So I am very pleased that, this year, The Computer Press Association has created a new category of awards for their Tenth Annual Computer Press Awards: "The CPA Reader-Chosen Awards." These awards will be decided by the votes of publication readers. It is your chance to make your opinions count. I, for one, will be very interested in what you have to say.

To make your voting easy, we have provided a copy of the official ballot. You can fill it out, fax it in, or drop it in the mail.



However you do it, I encourage you to vote. The computer publication editors of America are waiting to hear your opinion!

**Bill Laberis**  
Editor in Chief



## TENTH ANNUAL COMPUTER PRESS AWARDS, 1995

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# COMPUTERWORLD

These are the stories we have submitted for review by the CPA. Please feel free to nominate these, or any other articles you've enjoyed during the year.

### INSTRUCTIONAL OR EDUCATIONAL ARTICLES OR SERIES

- Guide to PC Support; *Kevin Burden, Stephan Clancy, Robert Johnson* (Dec. 5th)
- Guide to E-Mail; *Avery Jenkins, David Marshak* (Oct. 24th)
- Guide to 32-bit Operating Systems; *Jonathan Eunice, Mike Sullivan-Trainor, Garret Ray* (Apr. 11th)
- VIRUS; *Phillip Zakas* (July 11th)
- Software Product Review: Test Drive; *Jeff Angus, Al Giovetti* (Nov. 14th)
- Software Product Review: Test Drive; *Garret Ray* (Dec. 12th)

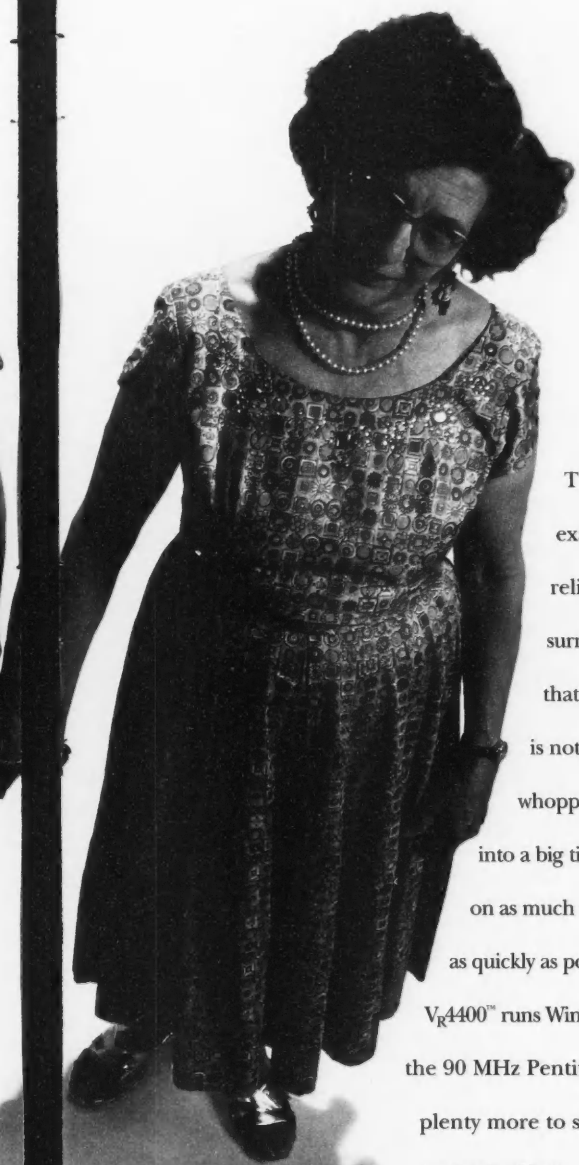
### FEATURES OR REVIEWS

- High Tech Wagering: Jackpot or Jeopardy; *Joe Maglitta* (Feb. 7th)
- Gays at Home in High Tech; *Ellis Booker* (Sept. 26th)
- Demonstrating Value of Technology; *Alice LaPlante* (August 15th, Oct. 3rd, Oct. 31st)
- Is COBOL Dead? *Alan Pursell, John Cunningham* (April 25th)
- Decree: Deal or Dodge? *Stuart Johnston, Mitch Betts* (July 25th)
- Migration Costs Stoke User Anger; *Rosemary Cafasso* (May 16th)

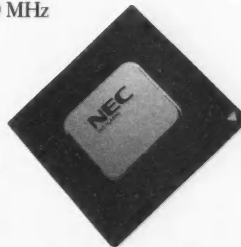


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# OSF/1 makes Digital a player in Unix game

By Neal Weinberg

■ **Digital Equipment Corp. has had an uneasy relationship with Unix ever since former Chief Executive Officer Kenneth Olsen shunned the operating system as a poor relation to the vaunted VAX/VMS.**

"They treated it like the crazy aunt in the attic," said Jonathan Eunice, an analyst at Illuminata in Hollis, N.H.

But Digital has gotten serious about Unix. The company put its engineering muscle to work and developed an implementation of the Open Software Foundation's OSF/1 kernel. Digital's OSF/1 version has gone from a standing start two years ago to running nearly 3,000 applications. And the company projects that its annual OSF/1 sales will hit \$1 billion by year's end.

"Digital went out and developed a top-class Unix operating system," said Jim Brennan, an analyst at WorkGroup Technologies, Inc. in Hampton, N.H.

Although it is a strong contender technologically, Digital's OSF/1 version is fundamentally on a par with Unix offerings from Hewlett-Packard Co., Sun Microsystems, Inc. and IBM. Each has its own strengths and weaknesses.

For example, Digital is tops in storage management, with a file system that is "the best you'll find," Eunice said. But it lags in systems management features, and its character-based user interface is weak, according to a recent report by D. H. Brown Associates, Inc. in Port Chester, N.Y.

Even after Digital decided it could not afford to ignore the Unix market, the company was slow to come out with a competitive product, Brennan said. As a result, Digital is still fighting for name recognition in the Unix market.

A year ago, when Saks Fifth Avenue was making decisions on how best to move to client/server, Chief Information Officer Robert Ramsden looked at all the major vendors.

Digital did not make the short list. "They weren't really in the mainstream in DEC wasn't really a player."

Tom Smith, senior systems engineer at Martin Marietta Corp.'s information systems group in Syracuse, N.Y., looked at Digital's OSF/1 about a year ago but went with Sun and HP.

The deciding factor was that the computer-aided design applications the company had selected as standard tools were not available on the Digital platform. "The box seemed to be a good per-

former. I have no complaint about that," Smith said. And interoperability was not a serious issue.

Still, Digital has scored a number of Unix wins, mostly from its installed base.

"We wanted to migrate to nonproprietary open systems," said Rod Barnett, director of systems support at Flav-O-Rich, Inc. in Louisville, Ky. As a longtime customer, Flav-O-Rich said it was comfortable sticking with Digital.

Without a strong business reason to change hardware vendors, Barnett said the logical choice was OSF/1. His system has been up and running for four months, and outside of some minor "tuning issues," he has been "quite pleased with the overall performance."

## Last in line

The problem for Digital now, Eunice said, is having to play catch-up. "It's tough being fourth to market. That's not an enviable position."

Eunice said it was only last August — when Digital came out with OSF/1 Version 3.0 — that the company had all of its Unix ducks in a row. "That was the last day you could say that Ken Olsen's anti-Unix feeling persisted in any degree."

Today, Brennan said, Digital's problem is no longer the technology or even the number of applications, which he says has reached a critical mass. The problem

appears to be Digital's marketing.

"The information we have indicates that during 1994 we weren't seeing Digital very much in competitive situations," Brennan said. The company is having success with the installed base in the U.S. and with customers in Europe. "There is a more positive view of Digital abroad," Brennan said.

Digital has acknowledged that it practiced "stealth marketing" in the past but said it is addressing the problem with new advertising and a more aggressive approach.

The wild card for Digital is its 64-bit Alpha hardware platform. Alpha's speed was the deciding factor for Guaranteed Overnight Delivery in Kearney, N.J., which recently went with OSF/1, according to CIO Michael Irwin.

And Paul Beck, manager of information processing at Manitowoc Engineering Co. in Manitowoc, Wis., said Alpha's horsepower was the reason his company selected OSF/1 for inventory, order entry and accounts receivable functions. "Why not pick the one with the best power?" Beck asked.

Furthermore, by going to 64-bit technology, Beck said he will not have to make the change down the road, which he would have to do if he had selected vendors using 32-bit systems.

## A good chunk

For Digital's second quarter, which ended Dec. 30, 1994, OSF/1 sales were \$187 million. That represented 10% of total product sales for the company.

## Strength in clusters

Digital is shooting for availability of a VMS-style Unix cluster file system by mid-1996.

**Winchester Systems, Inc.** has announced the FlashDisk SCSI series of RAID disk arrays for open systems.

According to the Woburn, Mass., firm, FlashDisk provides 2,200 disk read/write operations per second, per disk controller. It is targeted at databases, transaction processing, multimedia and imaging.

The product provides RAID Levels 0, 1, 3 and 5 data redundancy with hot spare automatic data rebuild and hot swap online drive replacement.

Prices start at \$5,250 for a FlashDisk SCSI with 1G byte of storage and 16M-byte cache in a tabletop enclosure for workstations.

► **Winchester Systems**  
(617) 933-8900

**I/O Concepts** has announced X-Direct Multi-Host Coax Gateway.

According to the Bellevue, Wash., firm, the X-Direct Multi-Host Coax Gateway lets Unix workstations connect to as many as seven mainframe hosts per SCSI interface. A GoScript scripting language automates TN3270 transactions. LU printer emulation software also comes with the card and process standard LU1 or LU3 data streams.

The product comes in a workstation or

stand-alone version. The stand-alone version costs \$5,000, and the workstation version costs \$500. Coax cards range from \$1,400 to \$2,800.

► **I/O Concepts**  
(206) 450-0650

**Pennant, The IBM Printing Systems Co.**, has announced the 3900-0W3 advanced function printer.

According to the Southbury, Conn., firm, the 3900-0W3 is a high-speed, high-volume continuous forms printer that can be upgraded to the top-of-the-line 3900 Wide Duplex printer from Pennant.

Features include fast decompression for printing of images, graphics and bar codes. Users can print up to four logical pages on a physical sheet.

Prices start at \$255,000.

► **Pennant**  
(203) 262-3939

**Sinper Corp.** has announced TM/1 Perspectives 2.0, on-line transaction processing software.

According to the Warren, N.J., firm, TM/1 Perspectives 2.0 increases the speed of data consolidations and the flexibility of consolidation paths, ensures data consistency, lets multiple users work on the same base of data and presents data in many perspectives.

The product uses Microsoft Corp.'s Excel or Lotus Development Corp.'s 1-2-3 spreadsheets as its front-end interface.

Features include data query control, context-sensitive help, handling of 16 dimensions and the ability to stack dimensions as rows and columns.

TM/1 Perspectives 2.0 costs \$795.

► **Sinper**  
(908) 755-9880

**1776, Inc.** has announced 1776 Multi-Host, software that permits two The Santa Cruz Operation systems to share resources.

According to the Los Angeles company, 1776 Multi-Host provides fault-resilience and high performance for mission-critical systems.

Users can be switched from one server to the other while the system is running, and either server can be rebooted without affecting the other.

1776 Multi-Host costs \$2,895.

► **1776**  
(310) 215-1776

**CompuAid** has announced Data Structure Extraction (DSE), data extraction software.

According to the Santa Monica, Calif., company DSE extracts and supplies the data structure information present in standard SQL join statement specifications. With this information, products using DSE can feature increased flexibility and accuracy, transparent access to legacy and nonrelational databases, multitable updates and basic object-

oriented processing capabilities.

DSE costs \$29,500 for a onetime, royalty-free license.

► **CompuAid**  
(310) 395-6889

**AIWA America, Inc.** has announced the AL-D210 and AL-D220 AutoLoaders, tape backup autoloaders.

According to the Mahwah, N.J., company, the autoloaders automate nightly tape backup operations including automatic tape insertion, removal and rotation of up to 17 tape cartridges.

The AL-D210 is SCSI-based and comes with one tape drive. The AL-D220 features two tape drives for increased data transfer. The autoloaders work with servers supporting Unix, Novell, Inc.'s NetWare, IBM's OS/2, Microsoft Corp.'s Windows NT and the Macintosh.

The AL-D210 costs \$6,995, and the AL-D220 costs \$8,995.

► **AIWA America**  
(201) 512-3600

## Product short

**Memco Software, Inc.** has announced Security for Open Systems. The security software intercepts sensitive system requests and includes secured single sign-on to all nodes so reusable passwords never travel on the network from Unix to the mainframe. Cost: \$749. Memco Software, New York, N.Y. (212) 286-8820.

## The New Watcom SQL 4.0. You Would Think We Looked at Your Wish List.

Introducing the database server you've been waiting for: **Watcom SQL 4.0.**

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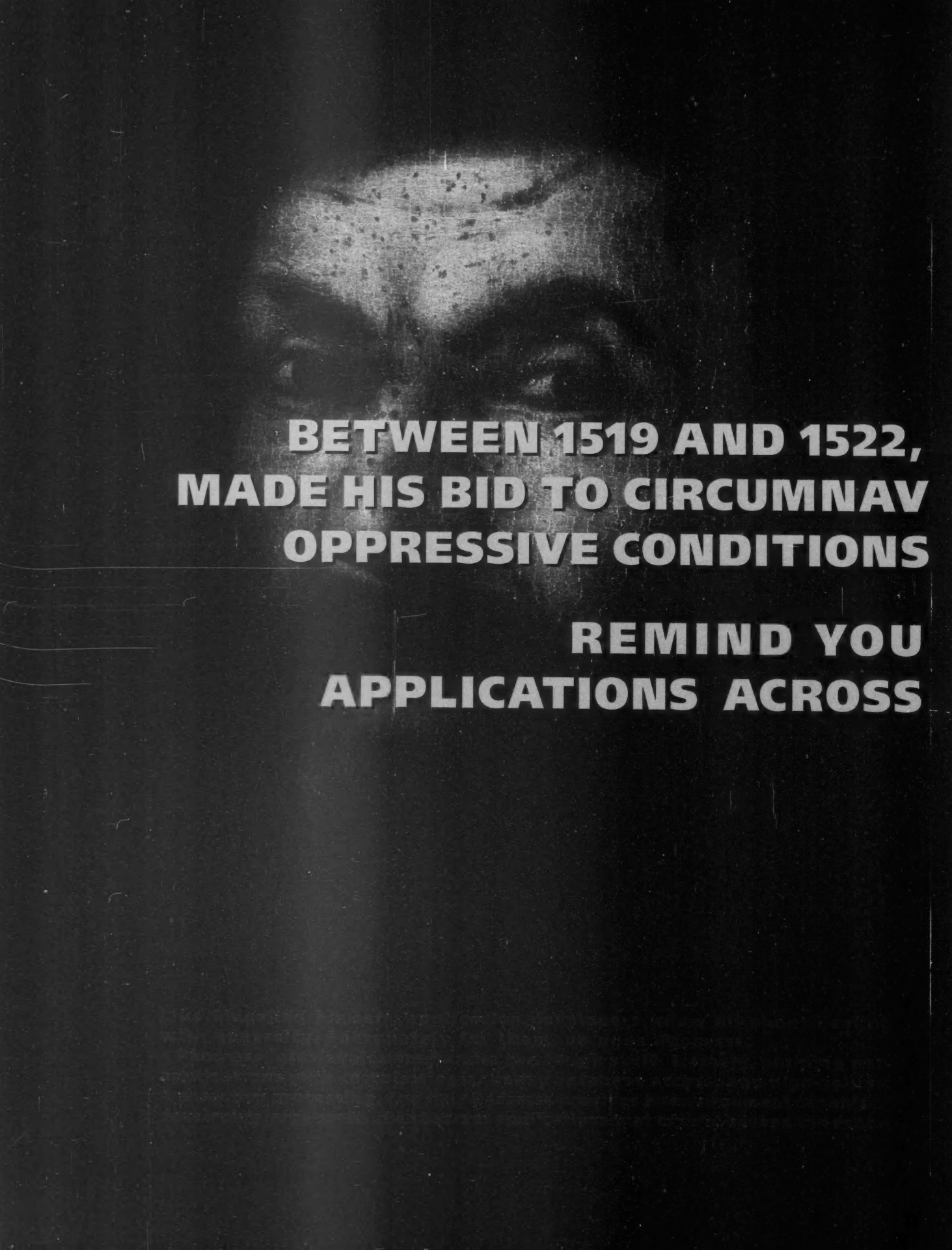
Also, the Watcom SQL product line includes both standalone and network servers built to allow you to move seamlessly between single and multi-user environments.

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To check out the new features of Watcom SQL 4.0, call 1-800-395-3525 today.

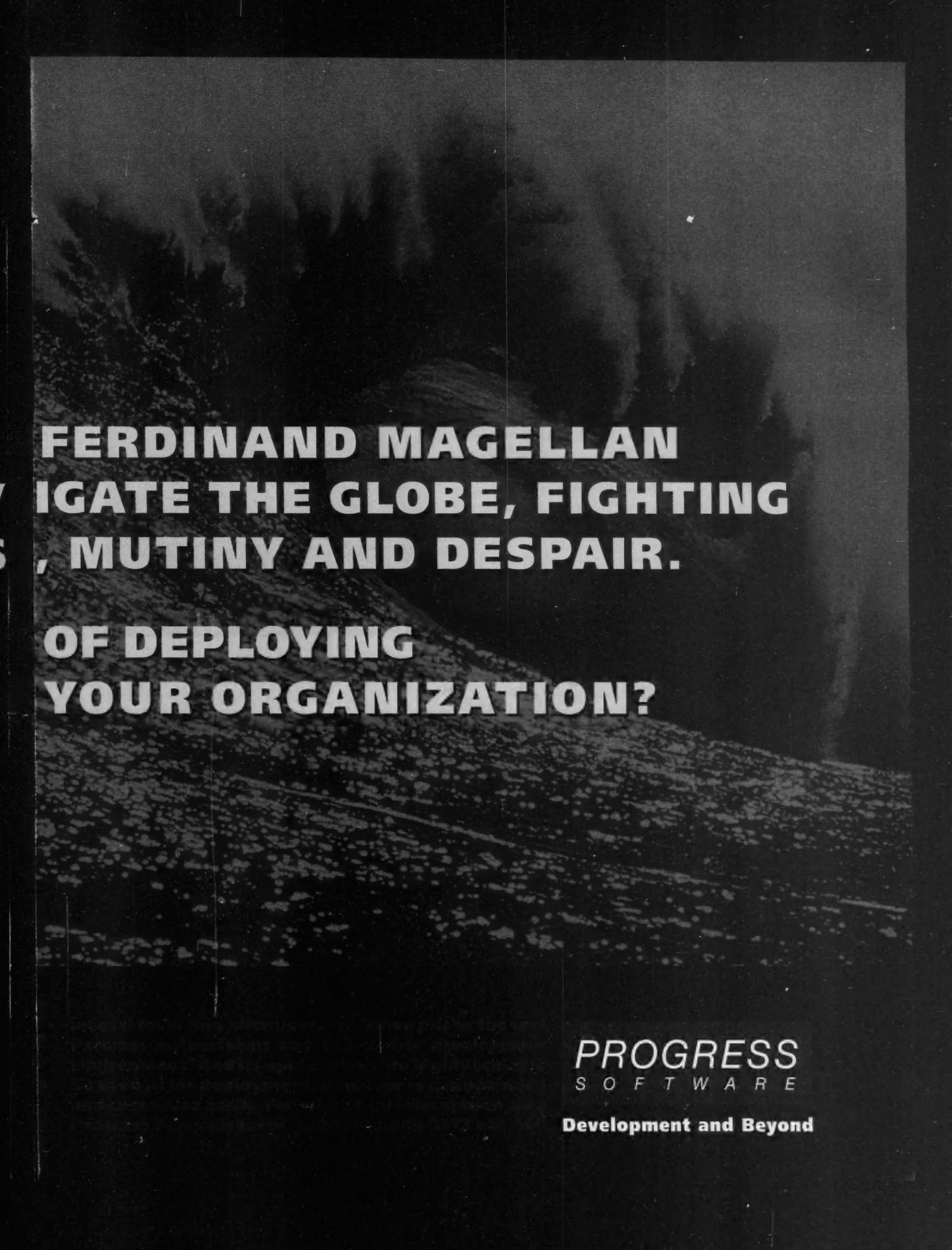
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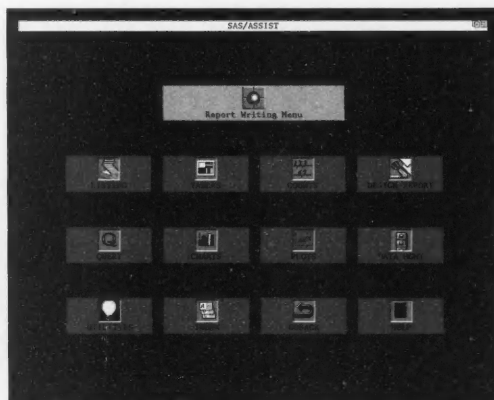
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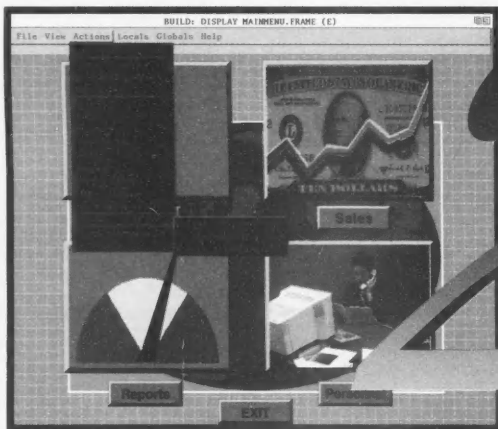
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The SAS System offers a secure and manageable environment for making enterprise data available on demand. And for turning that data into useful business information for strategic decision making.

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### Empower Your Applications Developers



2

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## IS rethinks its goals for client/server

By Rosemary Cafasso

The reality of the less-than-spectacular cost savings with client/server technology is really sinking in.

In a recent survey of 305 information systems executives by the Business Research Group (BRG) in Newton, Mass., respondents said they now put business issues such as productivity and improved customer service ahead of cost savings as their key objectives in moving to client/server.

Other IS managers and users agreed.

"Originally our focus was probably the money," said Gayle Best, assistant controller at Black & Veatch in Kansas City, Mo., which is installing Dun & Bradstreet Software's client/server decision-support application. "But flexibility and getting at data are very important to us."

Terry Thornton, director of financial systems at Vanstar Corp. in Pleasanton, Calif., said client/server had been sold on cost savings, but "the fact is it's the flexibility that gives you the most bang for the buck."

### Hidden costs

Cheryl Ball, a program director at BRG, said early adopters of client/server technology zeroed in on differences such as basic hardware costs between big mainframes and server platforms.

"But the ongoing costs of client/server are much higher than anticipated," Ball added. "From our studies, people are saving money in the 20% range, but not in the 600% range like people first talked about."

The BRG survey also showed that many companies are still struggling with re-engineering issues as they migrate to client/server architectures.

For example, while about half of those surveyed said they are redesigning business processes and software development processes as they shift to the new technology, a full 47% of respondents are not.

Interviews with IS managers indicate there is still a variety of opinions on the re-engineering topic.

Some companies are reluctant to make radical changes to any processes as they migrate to client/server, and they consider the

Goals, page 116

## Group touts componentware

High-profile pilot projects boost modular applications approach

By Elizabeth Heichler

A new vendor consortium is out to prove that business applications can be built out of modular, reusable software components, and the effort has been enlisted by the U.S. Navy and engineering firm Pratt & Whitney for some pilot projects.

Companies teaming up for the ComponentWare Consortium (CWC) are Bolt Beranek and Newman, Inc., Heuristic Research, Inc., I-Kinetics, Inc., Iona Technologies Ltd., NetLinks Technologies, Inc. and SunSoft, Inc. Each is contributing its commercial technologies in distributed object management (see chart).

CWC also aims to submit technology to the Object Management Group (OMG) for possible incorporation into its standards, said Bruce Cottman, president of I-Kinetics in Burlington, Mass. Areas that the CWC will address in its standards work include common facilities as well as object services to provide reliability, fault tolerance, transaction handling and dynamic capabilities, among other possibilities.

The vendors are also integrating those technologies and working with developers at Pratt & Whitney and the Naval Sea Systems Command (Navsea) to implement component-based information systems.

### Sinking resources

"Like everyone else in the [Defense Department], we've got major budget reductions, and we need to support our mission with fewer dollars and fewer people," said John Rivers, executive program manager for information systems at Navsea in Arlington, Va. Navsea's initial projects involving CWC are aimed at proving the concept viable.

Rivers said he hopes componentware eventually will deliver an innovative way of providing information services at a lower cost. "We need to look at the whole concept and how it can help us meet our mission requirements," he added.

The combination of reusable software components, data warehouses and packages to help tie components together should make things easier for systems programmers, Rivers said. While there are some Navsea developers with componentware experience, Rivers said it is a relatively new concept and that the organization will test the waters with two small projects before it moves on to three more complex ones. Navsea is also establishing a componentware learning center at its base in Keyport, Wash.

The ultimate goal at Navsea is to implement a system that integrates a wide range of Navsea applications including project management, computer-aided

design and manufacturing, database management systems and desktop applications such as spreadsheets and word processors.

Navsea will focus on applications services and linking front-end Windows applications on the desktop to multiple databases, explained Gordon Wood, information technology program manager at the Keyport base. "We've been doing a lot of client/server since the mid-'80s, and we're now trying to blend that with our corporate data systems," he said.

Wood and Navsea applications developers will work with CWC members at the Keyport componentware learning center. He

said he expects to use new tools that CWC vendors will create in the process. "We want to use as much off-the-shelf and reusable software as we can and do the minimum amount of code generation possible," Wood added.

At Pratt & Whitney in West Palm Beach, Fla., the goal is to build an "information factory" to support concurrent engineering for gas turbine engines and rocket propulsion engines, said Bruce Cottman, president of I-Kinetics, one of the vendors involved with the project. Pratt & Whitney spokesmen had no comment.

The information factory will assemble applications on demand from engineering product and process definition data components, Cottman explained. As a result, Pratt & Whitney hopes to have a set of reusable components and data

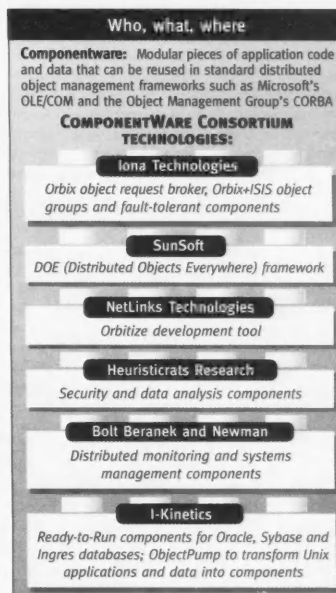
standards for its engineering and manufacturing systems.

Some of those tools will be provided by NetLinks in Nashua, N.H., said Alan Ewald, NetLinks' chief technology officer. NetLinks' Orbitize tool kit provides facilities for browsing and building the OMG's Interface Definition Language, which is part of the Common Object Request Broker Architecture standard.

During the next two years, NetLinks will develop tools that create interface definitions by reverse-engineering from existing data sources, Ewald said. NetLinks will also develop software for automatically generating test modules, he said.

For its part, I-Kinetics is contributing its componentware technology, which Cottman characterizes as building blocks that unite Windows and Unix applications. Its I-Bridge ComponentWare enables Windows development tools and desktop applications to access Unix data sources and applications as if they were local Windows desktop applications, he said.

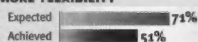
The I-Bridge ObjectPump transforms Unix data sources and Unix applications developed in-house into components, Cottman added.



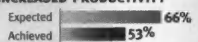
### Facing reality

Users have not achieved all of their expected goals with client/server but have made solid gains in many areas.

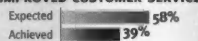
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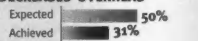
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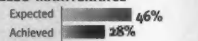
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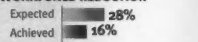
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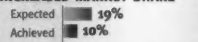
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Base: 305 IS managers

Source: Business Research Group, Newton, Mass.



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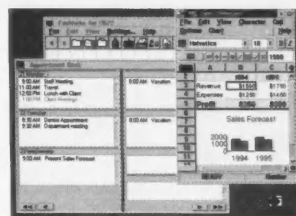
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# Wizard turns English into database language

By Kim S. Nash

■ **Ever try to speak SQL? No one should have to, even when communicating with corporate databases.**

That is the impetus behind English Wizard, a query tool from Acton, Mass.-based Linguistic Technology Corp. designed to let end users query and gather information stored in databases using the plain old English language.

English Wizard is a desktop utility that sits atop PC applications such as single-user databases, spreadsheets and report writers. It translates English to various forms of SQL, the most common syntax for talking to relational databases.

"You don't have to know a lick of SQL, really, which means almost

no training time for end users," said James Bradshaw, a director of database administration at Clemson University in Clemson, S.C. "You don't have to forget everything you always knew," he said.

The college has tested English Wizard for four months against an Oracle Corp. data warehousing database and a legacy Computer Associates International, Inc. CA-IDMS mainframe database. Two hundred to 300 users across Clemson's campus will use English Wizard to query and analyze information on student enrollment data, finances, purchasing and other topics, Bradshaw said.

English Wizard connects directly to Microsoft Corp.'s Access database and supports Open Database Connectivity for communicating with other relational and nonrelational databases. Object Linking and Em-

bedding support is on the drawing board for later this year, said Larry Harris, founder and president of Linguistic Technology.

Harris' roots are in artificial intelligence. In 1975, he cofounded AICorp, which made a mainframe-based natural language product called Intellect. Most of English Wizard's 40 beta-test sites are also Intellect users.

English Wizard includes a data dictionary, a DOS file of English words and their meanings in different contexts. The product also translates complicated database functions such as "subselects" and "having" clauses.

## Saves time

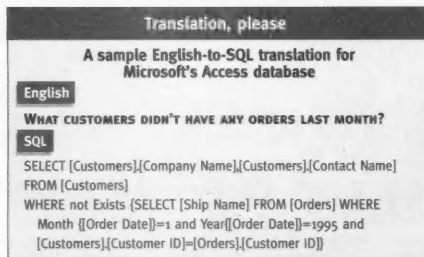
Albert Einstein Healthcare Foundation has tested the Access version of the product for the past few months and plans to roll it out to end users "as soon as possible," said John Mastronardo, information center manager at the foundation in Philadelphia.

Accounting clerks and medical personnel will be able to pull down mainframe patient and payroll data without requesting special reports from Einstein's information systems department, Mastronardo said. "We think it will be a time-saver for a lot of people," he added.

The product is available now at a cost of \$99.

## Bright future

PeopleSoft, Inc. plans to bundle English Wizard with its client/server financial applications, and Powersoft Corp. plans to embed the product into its development tools this year, according to Linguistic Technology founder Larry Harris.



## New Products

**Mortice Kern Systems, Inc.** has announced MKS Toolkit for Microsoft Corp.'s Windows NT 3.5.

According to the Waterloo, Ontario, company, MKS Toolkit for Windows NT 3.5 provides Unix system software utilities for the PC platform.

Tools include command editing and history, file processing and comparison and text manipulation and sorting.

MKS Toolkit for Windows NT 3.5 costs \$299.

► **Mortice Kern Systems**  
(519) 884-2251

**CenterView Software, Inc.** has announced Choreo for Microsoft Corp.'s Visual Basic, a client/server development tool set.

According to the San Francisco company, Choreo extends Visual Basic and features an object-oriented data access engine.

The DataDirector component is the SQL data access engine. The DataLink Manager is the user interface that lets users create data links connecting user-interface objects with database columns.

The DataLink Inspector provides an interface for setting complex database properties such as sorting, conditions and default values.

Choreo for Visual Basic costs \$595.

► **CenterView Software**  
(415) 873-1295

**Far Systems, Inc.** has announced The Far Voice 3.0, OS/2-based voice and fax application development software.

According to the Fort Atkinson, Wis., company, The Far Voice 3.0 is a platform for

developing complex computer telephony and voice processing applications.

The product incorporates the Btrieve database engine and allows any program supported by Btrieve to be incorporated into other voice and fax applications.

Features of The Far Voice 3.0 include RS-232 links, terminal emulation, fax integration, remote maintenance and support for switch integration to private branch exchanges.

A developer's license costs \$2,500 and includes four ports of voice runtime.

► **Far Systems**  
(414) 563-2221

**ObjectPlus Corp.** has announced WinPlus 3.1, an object-based software development environment.

According to the Cambridge, Mass., company, WinPlus 3.1 features built-in support for Microsoft Corp.'s Visual Basic custom controls (VBX). WinPlus converts VBX controls into WinPlus user interface objects. The controls help accelerate graphical user interface (GUI) application development.

Developers can use WinPlus 3.1 to develop applications for computer-based training, process monitoring and control, presentations, GUI front ends for legacy systems, electronic books and database transaction processing.

WinPlus 3.1 costs \$495.

► **ObjectPlus**  
(617) 491-7575

**Sterling Software, Inc.** has announced Vision:Flashpoint 3.2, a tool for creating graphical user interfaces for existing applications.

According to the Atlanta company, Vision:Flashpoint 3.2 lets users integrate host, LAN and workstation applications into a single user-oriented desktop.

The product provides easier access to editors and other design and development tools and provides communication drivers that eliminate the need to maintain separate versions of a program for connectivity purposes.

Users can save any panel as a template for reuse on other screens, preserving the links and properties of panels and controls.

Vision:Flashpoint 3.2 costs \$9,500.

► **Sterling Software**  
(404) 551-8300

**InSync Software Corp.** has integrated its Passport development environment with TechGnosis International, Inc.'s SequeLink multiplatform database middleware.

According to the Ronkonkoma, N.Y., company, the integration of Passport and SequeLink lets developers build distributed applications that can access heterogeneous databases without having to purchase network products for each database.

Passport's abstract database layer interfaces with SequeLink, and the two products work together behind the scenes of the development process.

SequeLink costs \$220 per client for InSync customers.

► **InSync Software**  
(516) 981-3000

## Product short

**Revelation Technologies, Inc.** has introduced OpenInsight for Workgroups: Lotus Notes Edition, a repository-based development environment. The product lets Notes users develop, manage and maintain groupware applications. Cost: \$1,995 per developer. Revelation Technologies, Stamford, Conn. (203) 973-1000.

## Goals

CONTINUED FROM PAGE 113

new technology to be enough for their users to manage.

For example, Terry Tung, director of IS at Morrison-Knudsen Corp. in Cleveland, said his company adapted business practices to fit the client/server financial software it installed from Platinum Software Corp. This called for "minimal change," which did not disrupt users, he added.

## An evolution

John Collins, chief information officer at Plaza Home Mortgage Corp. in Santa Ana, Calif., said his staff redesigned the development process to fit a client/server methodology, including more graphical and event-based programming, and is now using tools such as PowerBuilder from Powersoft Corp. in Concord, Mass.

"We aren't redefining [the software development process] now," Collins said. "It's an evolving process."

Ball said there is an expected lag time with some user companies that may be unwilling to tackle radical changes on all fronts, from development to systems to business processes.

"They do have to adopt new methods to develop software," Ball said. "Moving from procedural [programming] to objects requires re-engineering. [But] there are still IS shops who are very resistant to change."

**INSIDE:**

MassNet launch targets Massachusetts technology networks. See page 122

# LIFE in the FOREIGN LANE

By Alice LaPlante



IT'S TIME AGAIN for Ken Hamilton's monthly sit-down with his information systems peers at Barclays Bank PLC.

Off he goes, briefcase in hand, down the hall and into the elevator. Once out the door, he fights through tangled New York traffic to Kennedy International Airport, where he boards a plane for the more than six-hour flight to London's Heathrow Airport. After getting through



American IS managers working for foreign multinational corporations face challenges that go beyond linguistic and cultural differences



Bob Rubin, vice president of information services at Elf Atochem ETO, says that due to language barriers, international E-mail can exacerbate cultural differences

red tape in customs, he hails a cab that threads its way through crowded London streets to Barclays' headquarters. Voila — he's arrived.

Finally, a jet-lagged Hamilton — who is, in effect, the chief information officer of Barclays' North American operations — joins other senior Barclays IS managers from 75 countries around the globe for their monthly meeting of the minds.

"We've found that physically being in the same room on a regular basis is absolutely essential for keeping our worldwide IS groups running smoothly," Hamilton says.

Essential, indeed. More and more organizations are peddling their services and wares in the global village. This crossing of temporal, geographic and legal boundaries poses increasingly complex challenges for U.S.-based IS managers. Even the most seasoned IS managers will find themselves put to the test by linguistic and cultural differences with their foreign counterparts, uneven availability of hardware and software products and spotty vendor support services.

And American IS executives — such as Hamilton — who happen to work for foreign-based multinationals face a plethora of other issues as well, including the following:

- They are culturally and geographically removed from the epicenter of key business decisions.
- They often find overseas chief executive officers are more reluctant than American CEOs to adopt new or emerging technologies.
- They frequently find themselves forced into global IS standards and purchasing contracts that do not suit local operating needs.

Foreign lane, page 120

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# FOREIGN LANE

CONTINUED FROM PAGE 117

• They must adapt to social and cultural mores that are dramatically different from those in the U.S.

"The American decision-making process tends to be very direct — maybe to the point of being aggressive or confrontational," says Evan Wride, director of information services at Nissan Motor Corp., a U.S. subsidiary of Japanese automotive manufacturer Nissan Motor Ltd. European and Asian corporate cultures will probably require a different approach, he says.

"In Japan, for example, they tend to want to build relationships and consensus over time, so things can take a little longer or feel as though they are moving more slowly," Wride says. While this may be frustrating for a U.S.-based CIO, Wride says, "It may also result in better long-term results since things are thought through more carefully."

Today, things are considerably smoother than they were even three years ago [CW, April 12, 1992]. Smoother vendor distribution and support networks and more comprehensive international telecommunications services have made crossing the ocean a less hazardous technological undertaking. But a number of unique challenges still confront the domestic IS manager whose CEO resides overseas.

The biggest challenge by far, U.S.-based managers say, is making sure that being removed from world headquarters by seven or eight time zones doesn't mean being left out when all-important IS global architectures and policies are formulated. Being out of the loop can be frustrating in a decentralized domestic organization, but it's far harder to remedy when the home base is located in another country rather than another state.

"Being CIO of an American entity, even a multinational one, is completely different," says Hamilton, who formerly worked for a U.S. bank. It can be a bit of a jolt moving from a leadership to an "advisory" role, he says.

"If you're the CIO at corporate headquarters,

you're pretty much in charge. You're in the home office. You have access to the top business managers. You define the strategy, the architecture, the technological direction the corporation will take. Ultimately, you have the final word. That simply isn't the case when the headquarters is overseas," Hamilton says.

At Nissan, Wride had to learn quickly that when a Japanese counterpart said "yes" or nodded, he wasn't "necessarily agreeing with me," he says. "In Japan, a 'yes' means, 'I heard you.' Nothing more."

For this reason, Wride makes sure he gets everything in writing when working with an overseas superior or colleague. Currently developing a new warranty claims system for his U.S.-based operation, Wride is in frequent contact with Japan to ensure his system will coexist peacefully with the warranty system at the home office.

"We always make sure we are absolutely clear on what actions are being taken or not being taken," he says. Generally, this means firing off an electronic-mail message or better yet, a fax of a formal memo containing a signature.

"For some reason, receiving a personally signed document makes a big difference in Japan," he says.

## Mail problems

At Elf Atochem ETO, the Philadelphia-based subsidiary of the Paris-based pharmaceuticals giant, Bob Rubin, vice president of information services for Elf's North American operations, is not a fan of international E-mail, primarily because of language and cultural barriers.

"We find that 'delayed' communications such as E-mail don't work terribly well," he says. The dangers of hastily fired off E-mail messages are well known within domestic organizations. There is always the danger of forgetting or ignoring social niceties because of the impersonal nature of the medium. E-mail can also unintentionally offend the receiver because of the lack of accompanying visual clues indicating the sender's tone or attempts at humor. Language and cultural differences can dramatically

exaggerate these problems.

If it's impossible to arrange a face-to-face or telephone meeting, Rubin says, "we prefer to use faxes. They tend to be more thought-out, more formally written and contain less imprecise language."

Hamilton makes sure he stays in close personal touch by his monthly visits to London. These trips are especially important because the monthly consortium of Barclays CIOs has no authority to set worldwide standards. That respon-



"The American decision-making process tends to be very direct — maybe to the point of being aggressive or confrontational."

— Evan Wride, director of information services, Nissan Motor Corp.

sibility falls to a dedicated London-based architectural standards team that issues guidelines for Hamilton and his peers to follow. The monthly trek is thus a preemptive strike by Hamilton and the other scattered Barclays CIOs to make sure their in-the-trenches needs will not be put out of mind simply because they are out of sight.

## Balancing act

Then there's the need to balance the benefits of setting worldwide standards with maintaining the right amount of local autonomy. Just ask Rick Carney.

As director of information services at ABB Power Generation, Inc., a North Brunswick, N.J.-based subsidiary of Asea Brown Booveri, the Swedish/Swiss engi-

neering conglomerate, Carney has a lot of leeway for doing his own technological thing. Each ABB company around the world has its own board of directors, president and CIO. All these executives enjoy a good deal of autonomy from the home office in Switzerland. Despite this, many ABB companies have found it useful to share data with formerly separate subsidiaries.

"We discovered certain business synergies that made it helpful to swap customer proposals, product specifications, engineering drawings and even financial spreadsheets," Carney says of this trend.

Software and data compatibility at the desktop level was therefore fast becoming an attractive proposition. Four years ago, ABB world headquarters made a suggestion to its various subsidiaries: Create an informal and completely voluntary IS standards team to facilitate data sharing among ABB companies.

"A lot of people questioned whether this was a good idea," Carney remembers. For starters, there was the expense of sending the top technologist to an overseas meeting for three to four days at a time, several times a year. Then there was the worry about whether this would mean giving up valued independence.

But in retrospect, "there's no doubt it was a smart thing to do. We remain decentralized, operationally, but we've taken advantage of some opportunities to get some economies of scale," Carney says.

The ABB IS core team now meets three times a year to set general IS guidelines and directions for ABB companies. Microsoft Corp.'s Office has been identified as the standard desktop office software suite; Lotus Development Corp.'s Notes has been tagged for worldwide development of E-mail and groupware applica-

"If you're the CIO at corporate headquarters, you're pretty much in charge. You're in the home office. You have access to the top business managers. You define the strategy, the architecture, the technological direction the corporation will take. Ultimately, you have the final word. That simply isn't the case when the headquarters is overseas."

— Ken Hamilton, CIO of North American operations, Barclays Bank PLC

## Culture Clashes

**American IS executives who work for foreign-based multinationals must deal with a more complex mix of international IS challenges than their counterparts who work for U.S. firms. Among these issues are the following:**

- Taking a backseat role when future technological directions are determined for the corporation as a whole.
- Having limited access to the senior business executives who drive the global business, which in turn limits participation in strategic corporate decisions and may hinder career growth.
- Dealing with worldwide vendor licenses that limit the ability to take advantage of domestic discounts or promotions in product pricing and services.
- Overcoming a let's-take-it-a-little-slower attitude toward new technology that is more prevalent overseas than in the U.S.
- Facing cultural differences that can cause communications problems even when English is the common language.

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- IS/MIS/DP Management
- 21. Dir. Mgr. MIS Services, Information Center
- 22. Dir. Mgr. Network Sys., Data/Tele. Comm., LAN Mgr./PC Mgr., Tech. Planning, Admin. Services
- 23. Dir. Mgr. Sys. Development, Sys. Architecture
- 31. Programming Management, Software Developers
- 41. Engineering, Scientific, R&D, Tech. Management
- 60. Sys. Integrators/VARs/Consulting Management
- CORPORATE MANAGEMENT
- 11. President, Owner/Partner, General Manager
- 12. Vice President, Asst. VP
- 13. Treasurer, Controller, Financial Officer

### DEPARTMENTAL MANAGEMENT

- 51. Sales & Mktg. Management
- 70. Medical, Legal, Accounting Management
- OTHER PROFESSIONAL MANAGEMENT
- 80. Information Centers/Libraries, Educators, Journalists, Students
- 90. Other Titled Personnel

### 3. Do you use, evaluate, specify, recommend, purchase: (Circle all that apply)

- Operating Systems
- (a) Solaris (e) Mac OS
- (b) Netware (f) Windows NT
- (c) OS/2 (g) Windows
- (d) Unix (h) NeXTstep

App. Development Products ☐ Yes ☐ No  
Networking Products ☐ Yes ☐ No

E4B5-9



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- IS/MIS/DP Management
- 21. Dir. Mgr. MIS Services, Information Center
- 22. Dir. Mgr. Network Sys., Data/Tele. Comm., LAN Mgr./PC Mgr., Tech. Planning, Admin. Services
- 23. Dir. Mgr. Sys. Development, Sys. Architecture
- 31. Programming Management, Software Developers
- 41. Engineering, Scientific, R&D, Tech. Management
- 60. Sys. Integrators/VARs/Consulting Management
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App. Development Products ☐ Yes ☐ No  
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tions. It's important to note, however, that adherence to these standards is voluntary. No central ABB group has the power to enforce them. Indeed, no such group exists.

Carney likes it that way. "It's important that the people actually implementing the technology are the ones who make the final decisions," he says. "I need to be able to do what's best for my business."

The downside of the ABB approach: The group has no formal decision-making or enforcement powers, and "sometimes we have trouble agreeing," Carney says. So this peer group tends to set a minimal number of general software directions rather than hardware- or vendor-specific standards.

## Global licensing

Making sure that the global product standards being formulated tens of thousands of miles away are in line with U.S. requirements is one issue. Successfully negotiating with vendors to acquire those products at a reasonable cost and in a reasonable time frame is another matter.

There are two challenges: If individual CIOs in individual operating divisions or countries are free to acquire products on their own, the U.S. CIO loses the potential for volume discounts that a centralized purchasing department wields. On the other hand, a centrally fulfilled global license or buying agreement—particularly if negotiated overseas where hardware and software prices can still carry a significant premium—may prevent a U.S.-based IS manager from taking advantage of particularly good prices or promotions not available overseas.

At Elf Atochem, each CIO has the authority to negotiate with vendors for the best deal for their operation. They also carefully research the needs of other Elf subsidiaries around the globe and write a licensing agreement that allows for worldwide access to the terms—but without locking other Elf companies into those terms.

"When you're dealing with a global operation, you need to make sure your licensing agreements don't preclude local facilities from getting a better deal if they possibly can," Rubin stresses. "There are often quite valid reasons why a vendor can provide better opportunities or lower prices to certain geographic areas. You need to be flexible enough in order to take advantage of those times."

A former point of contention for multinational CIOs seems to be easing, at least among major technology vendors. Software and hardware have traditionally cost substantially more overseas—up to twice as much as in the U.S. In the UK, for example, for most hardware and software, you simply substituted the dollar sign with a pound sign, a 50% to 60% increase over U.S. prices, Hamilton says.

That has eased, primarily due to the clamor raised by major multinational customers. Today, Microsoft in Redmond, Wash., WordPerfect, the Novell, Inc. Applications Group in

Orem, Utah, and Lotus in Cambridge, Mass., among others, have designed new purchasing programs that take the needs of multinationals into account.

U.S.-based CIOs also often find themselves ahead of their overseas colleagues in their desire to adopt emerging technologies. As a result, "foreign firms tend to be less likely to jump on newer technologies, which can lead to frustration for their U.S.-based executives," says David King, CIO at Korn Ferry, an international recruiting firm in Los Angeles.

Either that or they tend to lead by example. At Nissan, the domestic IS team has long taken the global lead when it comes to telecommunications.

"Our group has been coordinating network issues for a long, long time," Wride says. Now the same is becoming true of client/server development. Nissan has a number of key distribution applications under development and is using IBM RS/6000 servers and Windows clients over Banyan Systems, Inc. LANs for legal, decision-support and human resources applications.



"In general, Europeans haven't had the experience we've had supporting PC applications, and they don't yet understand the necessity for keeping your users in sync." The European perspective tends to be, why upgrade when the old version is working just fine? "But you can't have half the company on Microsoft Word 6.0 and half on Word for Windows 2.0. Not if your goal is the seamless exchange of documents."

—Rick Carney, director of information services, ABB Power Generation, Inc.

out its worldwide operations, a move that probably wouldn't have been economically or technically possible if they had invested heavily in Intel Corp. PCs.

## Technology bridges culture gap

Still, store-and-forward technologies such as voice mail and E-mail are increasingly valuable weapons when battling the time zone and geographic distance challenges faced by U.S.-based IS managers and employees.

For this reason, Carney found one communi-

cations strategy absolutely essential: providing a single toll-free number so his employees can access his network from anywhere in the world. Although ABB has limited T1 lines installed between various U.S. operating companies, in general Carney depends on dial-up access. This means making it as easy as possible

## Building Better Bridges

**American-based IS executives can take steps to ease the difficulty of conducting business with their foreign-based peers**

- Hold regular face-to-face meetings.
- Get overseas decisions in writing.
- Use faxes rather than E-mail.
- Create an informal IS standards team.
- Have flexible licensing agreements.
- Provide a worldwide toll-free network access number.

for on-the-road ABB workers—whether across town, across the country or across the world. True, he says, paying for worldwide toll-free access will ultimately cost more than if employees dialed in to the network using toll calls. But Carney feels his firm would suffer from a lack of communication and coordination without the ease of use provided by the toll-free access.

Yet despite rosy predictions that technologies such as E-mail, groupware and interactive videoconferencing will replace traditional face-to-face communication—a major expense and hassle when working for a foreign boss—U.S.-based CIOs flatly say this simply isn't the case.

"Because of the cultural differences, you absolutely cannot replace the traveling, no matter how sophisticated your E-mail or videoconferencing network happens to be," says Bruce Hawthorne, president of Hawthorne Associates, Inc., a Peapack, N.J.-based international IS consulting firm.

A case in point: Elf Atochem installed videoconferencing systems at its offices around the world with the idea of cutting down on worldwide travel. However, travel has remained fairly constant. But now it is supplemented with ever-greater frequency by "virtual" meetings, Rubin says. This enables Elf employees to work together much more closely.

The real-time aspect of videoconferencing means you can ask questions and get immediate answers when a language or cultural miscommunication arises, he says. Also, you get the visual clues missing from a telephone conversation or faxed memos.

Of course, this would also be the case if trying to collaborate with a domestic colleague who happens to be located in another state, he says. "But the fact that you are part of an international company increases the complexity because of the range of possible differences—cultural, linguistic, political," Rubin says. But Rubin echoes his fellow CIOs when he says this can enhance, not detract from, job satisfaction.

"I find myself using a greater range of interpersonal and management skills than I would otherwise need," he says. Carney agrees. "The same things that make it challenging make it quite exciting," he says.

LaPlante is a freelance writer in Woodside, Calif.

# MIRACLE REWORKERS?

*MassNet, Massachusetts' newly launched collaborative network, has high aspirations, but can it bring the Massachusetts miracle back?*

By David Weldon

In an attempt to play catch-up with Silicon Valley in California, business and community leaders in Massachusetts have launched a collaborative for sharing innovative ideas and information via a statewide electronic network.

But many business executives attending the official launch of MassNet: Collaboration for the Commonwealth may be wondering what's in it for them because early talk has focused more on

that could be key to lining up support.

"If companies are going to support these projects, they're going to have to be shown what they'll get out of it. There is a selfish side to this," says Shula Malkin, a consultant at CSC Index, Inc. in Cambridge, Mass.

Sponsors say they hope to establish a collaborative computer network through which local businesses can share information. How this network would be created or implemented did not come up at the meeting.

MassNet debuted on Jan. 23 at a day-

aims to duplicate the efforts of the Smart Valley project, one of 13 initiatives created in the Joint Venture collaboration. Smart Valley was established almost as an afterthought to provide the information infrastructure necessary to support the other 12 initiatives, each of which targets a specific area such as health care, education, commerce or government.

MassNet intends to do the same for the Greater Boston region. The purpose of the initial MassNet meeting was "to bring together people, collaborations and technologies in order to assess common needs and opportunities," says Jessica Lipnack, one of the hosts of the event.

## First things first

But the program seems much like a case of putting the cart before the horse. MassNet is an early collaborative effort and does not have the array of other projects in place that Silicon Valley has. These projects include HealthNet, which promotes information sharing in the health care industry, and CommerceNet, which bolsters the electronic commerce sector, among others.

The Joint Venture also has strong state support, something that some fear MassNet lacks. Several attendees at the launch noted the absence of Gov. William Weld and Boston Mayor Thomas Menino, leading a few to question government support. U.S. Rep. Edward Markey (D-Mass.), former chairman of the House of Representatives' Telecommunications Subcommittee, did attend.

For many attendees, the event was the first exposure to MassNet's goals. Several said the gathering was more beneficial for personal networking than for the

long event at The Computer Museum in Boston, with more than 100 business managers, social service agency representatives and educators, as well as state and federal government officials, in attendance.

The effort is modeled after the Joint Venture collaboration created in 1992 to promote economic vitality and the quality of life in Silicon Valley. Specifically, it

what they can do for the community than on what collaboration can do for them.

MassNet sponsors have identified several areas in which they hope MassNet can benefit local public schools, the arts, and cultural and social service agencies, all with the financial backing and technology help of local businesses. But proposals on how MassNet could benefit the business community so far lack specifics

## BUSINESS BOOSTERS

**Initial participants in the MassNet collaborative have identified 21 target areas for the project. Among the business goals are:**

- Establishing a job opportunities data bank
- Aiding small business development
- Promoting the region as a business center
- Commercializing innovation
- Improving business marketing opportunities
- Establishing a technology park
- Improving information access in health care
- Aiding new technology applications
- Connecting local databases

project ideas tossed about.

Richard Dale, vice president of information systems at MicroTouch in Methuen, Mass., says he agrees with the long-term goals of MassNet and wants "to stay tuned in" to its development. But he echoed the feelings of many in attendance in saying his initial interest is little more than curiosity.

Dale says he hopes to satisfy that curiosity at the end of the spring, when MassNet sponsors plan to have their organizational structure in place and begin work on their first projects. ■

Weldon is *Computerworld's* associate editor, management.

## Intelligence

### Files

## Leadership diverges

What does technology have to do with exercising leadership? Very little, say many managers.

That is the finding of a survey of 1,450 senior and midlevel managers and executives at 12 global organizations by Gemini Consulting in Morristown, N.J. The survey, "Champions of Change: A Global Report on Business Transformation," looked at the link between leadership capabilities and organizational effectiveness.

"It concerns me that so few business leaders are exploring new technologies to help them with leadership challenges," Francis J. Gouillat, Gemini Consulting senior vice president, said of the findings. "New technologies can be uti-

lized to leverage communications of strategic objectives and create ways to better manage the learning processes in their organizations."

Participants were asked to identify the most important leadership capabilities from a list of 45, and the desire to explore new technologies was not ranked as a high priority.

Topping the list were articulating a tangible vision, value and strategy (32%); empowering others to do their best (27%); being a catalyst/manager of strategic change (26.7%); getting results/managing strategy to action (25%); and exhibiting a strong customer orientation (24%).

## Tough on turnover

Staff turnover among data processing professionals rose to double digits last year, and many companies are looking at new ways to compensate their data processing staffs to hold on to them.

That is the finding of a new survey of

63 Fortune 500 corporations by Edward Perlin Associates, Inc., a New York compensation management consultancy. The survey reports that this turnover trend is expected to continue this year, and many companies are upgrading salaries and other compensation methods for lower grades and positions as a result.

The survey suggests this turnover trend "bodes ill for companies that haven't maintained competitive compensation levels during the last several years," said John Warlikowski, a consultant at Edward Perlin. "Some of these compensation laggards will have to go through the long and costly process of replacing key personnel if they don't act aggressively to retain their staffs."

## Leave home without it

American Express Co. wants to make sure you don't leave home without it, whether you're actually carrying the card or not. Two weeks ago the company

set up shop on the Internet with ExpressNet.

According to the *Dallas Morning News*, the on-line service offers cardholders a variety of information bulletin boards such as travel and consumer tips, communication access to the company and 24-hour access to individual accounts.

Cardholders can now check their account balances and whether charges and payments have been posted. Through checkbook programs such as Quicken and Managing Your Money, cardholders can also make electronic payments to their accounts.

The service also allows noncardholders to apply on-line for a card.

To take advantage of the service, cardholders must enroll by filling out an electronic form about their card and account information. They then receive a password in the mail that allows them access to ExpressNet services and their accounts.

# Calendar

## MARCH 12-18

**15th Annual Use of Clinical Information Systems Conference.** Snowbird, Utah, March 12-15 — Contact: Association for Applied Clinical Information Systems, Ann Arbor, Mich. (313) 971-6557.

**Uniform '95.** Dallas, March 12-16 — Keynote speakers include Ed McCracken, chief executive officer, Silicon Graphics, Inc.; Robert Frankenberg, CEO, Novell, Inc.; and Bruce Tognazzini, engineer, SunSoft, Inc. Contact: The Interface Group, Needham, Mass. (617) 449-6600.

**Managing the Information Resource: Information Technology and the New Value Equation.** Los Angeles, March 12-17 — Forum focuses on frameworks, techniques and skills necessary to align information technology with the needs of business. Contact: Marcie Desmond, Cambridge Technology Partner, Cambridge, Mass. (617) 374-8702.

**13th Annual National Conference on Ada Technology.** Valley Forge, Pa., March 13-16 — Contact: Rosenberg & Risinger, Culver City, Calif. (310) 397-6338.

**Toward an Electronic Patient Record '95.** Orlando, Fla., March 14-19 — Eleventh international symposium on the creation of electronic health record systems and global conference on patient care. Keynote presentations include "Cutting the Hype: Real Life Demonstrations of Today's Capabilities" and "Focus on the Patient: Effects of Changing Technology on the Patient." Contact: Medical Records Institute, Newton, Mass. (617) 964-3923.

## MARCH 19-25

**Life Office Management Association Systems Forum and Exhibit 1995.** Orlando, Fla., March 19-22 — Life insurance industry conference features more than 800 management and technical sessions in areas such as data security, client/server and LANs. Contact: Guide International, Chicago, Ill. (312) 245-1599.

**National Fiduciary and Securities Operations Conference.** Orlando, Fla., March 19-22 — Features 30 concurrent sessions divided into five categories: management, securities, products and services, technology and global custody. Contact: American Bankers Association, Washington, D.C. (202) 663-5000.

**Object World.** Boston, March 19-23 — Contact: IDG World Expo, Framingham, Mass. (508) 879-6700.

**FOSE '95: America's Integrated Information Technology Exposition.** Washington, March 20-23 — Contact: Reed Exhibition Cos., Silver Spring, Md. (800) 791-3673.

**PCB Design Conference.** Santa Clara, Calif., March 20-24 — Focus on emerging technologies used to design and manufacture printed circuit boards. Contact: Yolanda White, Miller Freeman, Inc., San Francisco, Calif. (415) 905-2354.

**The Business Side of Software and Technology Licensing.** Atlanta, March 23-24. The conference will also be held April 20-21 in Chicago and June 8-9 in Washington — Fee is \$1,375, and member discount price is \$1,195. Contact: American

Management Association, Saranac Lake, N.Y. (800) 262-9699.

## MARCH 26-APRIL 1

**The 6th Annual Commercial Lending Executive Conference.** Irving, Texas, March 26-28 — Theme: "Banking on Change: Tomorrow's Bank, Today's Leaders." Contact: BancA/Andersen Consulting, Dallas, Texas (214) 761-8127.

**National Automated Clearing House Association 1995: Electronic Payments, Business Solutions.** New Orleans, March 26-29 — Conference focuses on radical changes in the way corporations, consumers, governments and financial institutions exchange information and payments. Contact: National Automated Clearing House Association, Herndon, Va. (703) 742-9190.

**The Natural Conference.** Boston, March 26-29 — Conference focuses on topics of interest to users and encompasses areas of systems development that may or may not relate to Software AG products. Areas of interest will include event-driven programming, graphical user interface design, object-oriented programming and design and programming techniques in the client/server environment. Contact: Jim Wisdom, The Natural Conference Committee, Boston, Mass. (617) 342-3660.

**Financial Executives Institute's Information Management Issues Conference.** San Jose, Calif., March 27-28 — Contact: Laura Zepp, Financial Executives Institute, Morristown, N.J. (201) 898-4629.

**Networld/Interop '95.** Las Vegas, March 27-31 — The session topics include enterprise applications, networking management, practical LANs, network connectivity, practical Internet and switched networks. Admission is free. Contact: Softbank Expos Conference Co., Foster City, Calif. (800) 488-2883.

**Automated Manufacturing Exhibition and Conference.** Greenville, S.C., March 28-30 — Contact: South Carolina State Board for Technical and Comprehensive Education, Columbia, S.C. (803) 737-9355.

**Advanced Manufacturing Technology Conference.** Cleveland, March 29 — Sponsored by Advanced Manufacturing Research, Inc., Boston, Mass. (617) 542-6600.

## APRIL 2-8

**Seventh Annual National Managed Health Care Congress.** Washington, April 2-5 — Contact: National Managed Health Care Congress, Burlington, Mass. (617) 270-6000.

**The 12th Annual Conference and Exposition of the Information Systems Security Association (ISSA).** Toronto, April 2-5 — Conference theme, "Learning From Each Other," will be conveyed in educational topics such as security awareness; client/server/distributed computing security; telecommunications/network security; vendor security solutions; and lessons. Keynote speakers include: Terry F. Lenzner, chairman of the Investigative Group, Inc. in Washington. Con-

tact: Lona Kovacs, ISSA International headquarters, Glenview, Ill. (708) 699-6441.

**Application Development Conference & Exposition.** New York, April 3-6 — Topics include "Enterprise Client/Server Development," "Building Enterprise Reliable Systems," "Object-oriented Strategies and Enterprise Development," "Project Championship," "Enterprise Application Architectures," "Transitioning Legacy Systems to Client/Server" and "The Year 2000: Problem and Solutions." Contact: Software Productivity Group, Northboro, Mass. (508) 393-7100.

**Data Warehouse & Decision Support Systems '95.** Rockville, Md., Arlington, Va., April 3-6 — Sponsored by Barnett Data Systems. Fees: one or two attendees — \$1,295 per person; three to nine attendees — \$1,000; 10 or more — \$900. Exposition costs \$25 per person. Contact: Barnett Data Systems, Rockville, Md. (301) 762-1288.

**Introduction to Globally Scalable Parallel Computing.** Ithaca, N.Y., April 4 — Contact: Cornell University's Engineering and Theory Center, Ithaca, N.Y. (607) 254-8686.

**Application Development Conference & Exposition.** New York, April 4-5 — Fees: four-day all-inclusive package — advanced registration (expires Feb. 28.) \$850; three-day full conference and exposition package — \$750; one-day attendance — \$300. Contact: CMP Applications, Inc., New York, N.Y. (516) 733-6770.

**"From Form to Function Symposium."** Edison, N.J., April 6 — This symposium will cover "Electronic Forms Design and Solutions," "Paper to Electronic Transformation," "Managing Electronic Forms," "Workflow Enhancement Technologies" and "Imaging Systems with Forms

Automation." Contact: Spectrum Systems & Resources, Inc., Parlin, N.J. (908) 727-1112, Ext. 9.

## APRIL 9-15

**American Management Association's 66th Annual Human Resources Conference & Exposition.** Chicago, April 9-12 — Registration fees: Member rate — \$1,095; nonmember rate — \$1,195. Contact: American Management Association, Saranac Lake, N.Y. (800) 262-9699.

## APRIL 23-29

**"The Evolution of Object Methods."** Chicago, April 24; New York, April 25; Dallas, April 27; San Francisco, April 28 — Attendees will learn about the unification of object-oriented methods and the state of object methodologies. Contact: Rational Software Corp., Santa Clara, Calif. (408) 496-3600.

**AMMES Roundtable Seminar.** San Jose, Calif., April 26-27 — A two-day seminar and exhibition to discuss the benefits of Manufacturing Execution Systems software for real-time shop floor control. Contact: Manufacturing Execution Systems Association, Pittsburgh, Pa. (412) 781-9511.

Calendar announcements should be submitted at least six weeks prior to the event and include the title of the event, dates, location, theme or focus, keynote or major speakers, principal topics and a contact person, organization and phone number.

### SEND ANNOUNCEMENTS TO:

David Weldon, Associate Editor/Management, Computerworld, 375 Cochituate Road, Framingham, Mass. 01701. Fax: (508) 875-8931.

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# In Depth

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to IBM's  
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V. Gerstner,  
what would  
you say? We  
offered some  
IBM customers  
the chance to  
air their  
kudos and  
gripes — with  
service and  
support  
receiving a  
bit of each.  
Mr. Gerstner,  
are you  
listening?

Dear Mr. Gerstner,

Now that we're into 1995, I thought I'd take a minute to write to tell you what I liked best about IBM in the past year and what I think could use improvement. So here goes:

I'd term your various support services as excellent. The AS/400 Advocate Service is a welcome addition. Now, on the other end of the line, there is always someone who is knowledgeable in the AS/400 and OS/400 or who can route me to the appropriate expert. That saves time and trouble.

Support has also been solid through your branch marketing teams, and your customer engineer support people also continue to excel. We take our CE's advice under heavy consideration because it is so often right.

**On the technical side, your Advanced Series AS/400 has delivered some great price/performance for us.**

And the new 440 Series 9337 disk drives have been a plus in several ways. For starters, these drives help us save in terms of footprint; we need fewer boxes because we get 2G bytes in a 1G-byte space. If yours is a shop like ours that adds up gigabytes to reach the terabyte range, you start becoming concerned about floor space. Fewer but larger-capacity drives means we're getting more for our buck. And certainly, fewer disk drives are greener and cheaper to run because you don't need as much electrical power to drive and cool them.

**We're also thrilled that Opticonnect has finally made it out of the lab!**

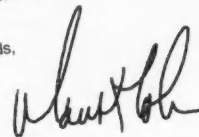
Best of all, your restructuring and downsizing have given us a gift — lots of good people to hire. We currently have five former IBMers on our staff, including network technicians, people running our PC department and software developers. In fact, our nickname here in St. Louis is "IBM West."

**That's the rosy side. But there are areas that need some work.**

- Access to experts. While restructuring and downsizing have brought good people to us, they have also meant there have been too many good people lost at IBM. Your resources are constrained. The expertise is there, but it's not as free and easy as it used to be.
- Packaging of the Advanced Series AS/400s. These machines just look awful in our multimachine computer room! They look so awful that we put a couple of lava lamps on top of two of them, set up a TV between them, put someone in an armchair in front of them with popcorn and look an 8- by 10-in. glossy — which we sent to some of your AS/400 people. The AS/400s look like a couple of stereo speakers sitting in our 9,000-sq.-ft. space.
- The "interim" status of OS/400 Version 3 Release 0.5 — Fish, visitors and interim releases smell in three days.
- PC hardware availability — Talk about virtual.
- PC Communications Manager 2 — It's fairly weak in error recovery and a drag on the network.
- IBM's billing system — Your billing practices are legacy all the way; they haven't changed in 25 years, and they look like it.
- Undocumented OS/400 logic — We found out the hard way that some undocumented operating system logic, in the area of disk mirroring, exists for the AS/400.

**That's about it. All in all we can't complain. Best of luck with your recent changes in 1995.**

Regards,



**Marc Cohn**  
Senior vice president of information systems  
Enterprise Rent A Car Co.  
St. Louis

**Environment:** 18 AS/400s, with another planned;  
1.5T-byte 440 Series 9337 disk drive;  
PS/2 number 1,000 installed in January

Dear Mr. Gerstner,

Santa Cruz County concluded several deals with IBM last year, namely, some new processors and disk drives. We felt IBM did the right thing for us in 1994, and that's the bottom line. Frankly, we would like to see you keep it up.

We need five things from you (and our other technology vendors):

- Products that work as they are supposed to, the sine qua non. IBM has done this very well for years; keep it up!
- Outstanding maintenance service, on site, 24 hours a day, seven days a week. IBM's local maintenance branch works really hard to be part of our team.
- Healthy, competitive third-party software and used hardware markets. IBM can't be the best at everything, and IBM's third-party software market offers the best choices in the industry. The used IBM hardware market gives us good residuals and leverages our investments. IBM benefits greatly from the presence of these markets and should work to keep them healthy.
- Aggressively producing new technology that solves real business problems. IBM hardware and operating systems fall into this category, but IBM's software and systems integration middleware don't. We use many different vendors and have to hassle systems integration. This is not desirable.
- Aggressive, competitive pricing.

IBM will win our business in the future only with steep discounts, local government pricing, real quality, leading-edge technology that works and strong residuals.

Very truly yours,

Luther Perry  
Information services director  
Santa Cruz County  
Santa Cruz, Calif.

**Environment:** IBM 9672 CMOS mainframe,  
IBM 9394 Ramac DASD,  
2,000 mixed-vendor terminals and PCs.  
Network runs entirely on Token Ring,  
including mainframe IBM SNA.

Luther Perry

Dear Mr. Gerstner,

My biggest concern is with service. IBM's service has always been good, especially for us because we used to be an IBM Credit Union and we're right across the street from your Kingston, N.Y., plant.

But now the Kingston plant is closing, and as with such closings, good people go to other plants or leave. The availability of people and parts isn't at its previous levels.

It takes more of a concerted effort to make sure IBM people get here to help us and that they're qualified. Qualification is an issue because there are now fewer support people covering more territory who have to become adept at many different pieces of hardware.

Sincerely,

Lawrence E. Wonderly

Lawrence E. Wonderly  
Vice president of MIS  
Mid-Hudson Valley Federal Credit Union  
Kingston, N.Y.

**Environment:** IBM ES/9000 9221 Model 170  
loaded with IBM 3380 DASD  
and IBM 9345 DASD.  
IBM 3720 communications controller;  
Novell, Inc. LAN running 60 PCs,  
both IBM and non-IBM, with a  
terminal count of 110.

Dear Mr. Gerstner,

Our company, Chelsea Milling Co. (we make the well-known Jiffy brand mixes), has been a long-time user of IBM equipment and services. We have evolved over the years from the System/32, System/36 and now use the AS/400. For the most part, our relationship with IBM has been very good, but that seems to be changing.

In the early years, IBM provided outstanding service. I'd like to relay an instance of that. We were upgrading the AS/400 to Version 2 Release 2. I had set aside a weekend to do a complete backup on a 9347 tape drive and upgrade the operating system. It was about 6 p.m. on a Saturday, and I started getting media errors. I called my customer engineer support person to get some assistance, and he discovered it was a damaged tape, not the tape drive. He could have just told me to order new tapes and hung up, but he did not. He drove more than 100 miles, into another state, to an office that had another set of tapes. He brought them to my location and waited with me until I got past the sticking points. My upgrade proceeded flawlessly.

But since then our service seems to have suffered. Last year, our company switched to an alternative method of hardware maintenance in which we contracted with an insurance underwriter that reimburses us on a time and materials basis for the work done by whomever we call to do the repairs. This method lets us keep all of our equipment under one contract. We call IBM for the actual repairs and pay for time and materials but no longer pay the company for maintenance. Such a contract works well for us with one exception - IBM has lost interest in helping us. IBM people haven't responded as quickly and have let us know we wouldn't be having these problems if we had continued on the IBM maintenance plan. The ironic thing is, IBM was getting more money from us when we had no contract with it at all!

As a result of the slower response times, we now use another company to handle our maintenance needs.

Sincerely,

Sherry L. Desbrough

Sherry L. Desbrough  
MIS director  
Chelsea Milling Co.  
Chelsea, Mich.

**Environment:** IBM AS/400,  
BPCS Integrated Software,  
IBM PS/2s and ValuePoint PCs,  
IBM terminals, memory and EMC DASD

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# UPDATE No 5



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**Tip your glass at the Boston Beer Tasting Reception.** Belly up to the bar and sample beer from famous Boston area breweries like Samuel Adams, the Commonwealth Brewery and others on Wednesday, March 22, at 5:00 p.m.

**Receive valuable show coupons.** Save on the latest in hardware, software, and services with hundreds of dollars worth of discount coupons good only at Object World Boston.

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Tuesday, March 21	11:00 a.m. - 6:00 p.m.
Wednesday, March 22	11:00 a.m. - 6:00 p.m.
Awards Ceremony	4:30 p.m. - 5:00 p.m.
Beer Tasting Reception	5:00 p.m. - 6:00 p.m.
Thursday, March 23	10:00 a.m. - 2:00 p.m.

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• **Objects: Not Just for Programmers Anymore.**

Tuesday, March 21, 10:15 a.m. - 11:30 a.m.

Keynote Speaker: **Steven A. Mills**, General Manager, IBM Software Solutions

• **Business Engineering with Object Technology.**

Wednesday, March 22, 10:15 a.m. - 11:30 a.m.

Keynote Speaker: **David A. Taylor, Ph.D.**, President, Enterprise Engines Inc.

• **Theory is Great, But Does it Get the Job Done?**

Thursday, March 23, 9:00 a.m. - 10:30 a.m.

Keynote Moderator: **Jon Hopkins**, President, Palladio Software Corporation

Keynote Panelists: **Grady Booch**, Chief Scientist, Rational Software Corporation; **Ivar Jacobson**, Ph.D., V.P., Technology, Objectory AB; **Stephen J. Mellor**, V.P. and Founder, Project Technology, Inc.

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2. Consultant
3. Education
4. Engineering
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7. Insurance/Banking/Financial
8. Manufacturing
9. Professional Service
10. Retailer
11. Software Developer
12. Wholesaler/Distributor
13. Other \_\_\_\_\_

#### C. Your Title

14. Chief Information Officer
15. Consultant
16. EDP System/Program Planning
17. Software Engineer
18. Engineer (other than software)
19. General Management
20. Information Systems Manager
21. Manager, Systems Architecture
22. Manager, Systems Development

#### D. Number of Employees in Your Company:

23. Under 100
24. 100-499
25. 500-999
26. 1,000-4,999
27. 5,000-9,999
28. 10,000-49,999
29. 50,000-99,999
30. 100,000 or more

#### E. Which Functions Do You Perform in Regard to Object Technology?

31. Final Decision Maker
32. Specify
33. Recommend
34. Approve
35. Develop/Use
36. Build
37. Other \_\_\_\_\_

#### F. In Which of the Following Object-Oriented Products or Services Are You Interested?

38. C++
39. Smalltalk
40. Eiffel
41. Frameworks
42. Analysis and Design Tools
43. Visual Programming
44. Portable GUI Builders
45. Development Environments
46. Distributed Management Facility
47. Class Libraries
48. None
49. Databases

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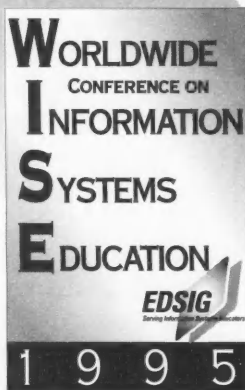
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WISE

# Computer Careers

## Testing fate

*Companies don't test for technical proficiency as often as they should, but when they do, mainframe expertise is still on the list*

By Harvey Bookman

**P**rogrammers may get away with buzzword double-talk in technical interviews, but as many of us know, talking technical is not the same as being technical.

And if a smooth-talking programmer schmoozes his way into a project he can't handle, it can spell disaster. A nonproficient programmer on a 10-man project can actually decrease output by more than 10% if his team members have to spend time fixing his mistakes.

In a perfect world, all information systems job applicants would be tested for technical know-how. But in reality, the primary method for qualifying hires is still the traditional interview, despite studies that indicate it offers mixed results. Interview-only screening methods often fail because interviewers lack the expertise to spot exaggerated technical accomplishments. Moreover, questions are often geared toward technologies with which the interviewer is most famil-

iar or material that is easily memorized.

Technical tests, on the other hand, are objective, consistent, color-blind and gender-indifferent. Test statistics can be correlated, producing percentiles of relative and objective ability.

Tests should assess the technical skills required to perform a job proficiently. If the test is simply theoretical, the answers might be memorized by someone who has simply read a book on the subject. Done right, tests can simulate actual job situations. But tests cannot determine whether an individual fits into a corporate work environment or has a good work attitude.

### Testing advantages

Slowly, the benefits of testing are starting to show, and, surprisingly, companies are still looking for proficiency in legacy systems. For example, in the past three months, companies purchased more Cobol, CICS and DB2 tests from Bookman Consulting, Inc., a software de-

Testing fate, page 131

## Still testing mainframe aptitude

*The demand for skills in the newest languages is hard to ignore if you've ever perused the help wanteds, but companies haven't stopped looking for proficiency in other areas. Information gathered from Bookman Consulting's, database of 125 employers that use its programmer proficiency tests illustrates this.*

**Q. Which proficiency tests would you expect to be the most in demand: PowerBuilder, Visual Basic or CICS tests?**

**A.** You may be surprised to hear that, from what we've seen, the CICS test outsells the PowerBuilder and Visual Basic tests combined.

**Q. What about the battle among Oracle, Sybase and IBM's DB2?**

**A.** Companies in our database have bought approximately 2½ times more Oracle tests than Sybase tests. Moreover, DB2 beats Oracle by 50%.

**Q. Is MicroFocus PC Cobol replacing mainframe Cobol?**

**A.** Mainframe Cobol tests are used more than 30 times as much. Cobol still leads over C. In object-oriented languages, C++ tests are 10 times more common than Smalltalk tests.

Source: Harvey Bookman, Bookman Consulting, Inc., New York

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# GET SERIOUS

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## Computer Careers

### Testing fate

CONTINUED FROM PAGE 129

veloper in New York, than from any other available skills tests. Microsoft Corp.'s Visual Basic, Powersoft Corp.'s Power-

to \$300 per test, technical testing services are not inexpensive, but it's a small price to pay when shelling out thousands of dollars for the proper skills. To lessen the costs, companies might consider developing tests in-house, but the lack of expertise to write tests and insufficient staff to produce valid statistics and per-

### The 10 best-selling skills tests in the past three months

Base: 125 companies using Teccheck; Source: Bookman Consulting, Inc., New York

- |          |                 |
|----------|-----------------|
| 1. Cobol | 6. Visual Basic |
| 2. C     | 7. Oracle       |
| 3. CICS  | 8. PowerBuilder |
| 4. DB2   | 9. Unix         |
| 5. C++   | 10. DOS         |

Builder and C++ were also good sellers, but they finished well below mainframe-related skills tests.

What companies test? The likes of Mellon Securities, the U.S. Customs Service and the West Virginia Bureau of Employee Programs test on the legacy staples—Cobol, CICS and JCL. Bristol-Myers Squibb tests on CICS, Cobol II, DB2, PowerBuilder, Visual Basic and Sybase, Inc.'s database product. New York Life Insurance tests on Cobol, DB2 and C.

Consultancies are also big testers. Keane, Inc., a data processing and management consultancy in Boston uses approximately 70 tests for its consultants.

But testing comes with a price. At \$50

centiles generally prohibit this. The development costs for a good test can easily exceed \$50,000, with an additional few thousand dollars per year required for test maintenance.

Yet when push comes to shove, testing, especially for computer programmers, makes sense. Interviewers will have more time to spend evaluating the job candidate's attitude and expectations, and the result will be more objective. ■

Bookman is president of Bookman Consulting, Inc., a New York software developer that specializes in programmer proficiency testing. He developed Teccheck, an expert system testing service.

### It pays to be sure

*Have you ever hired someone who claimed to have technical experience and didn't?*

"We've hired some certified Novell engineers who said they had experience but really had little hands-on knowledge. These people turned out to be disastrous. I want to make sure that they have more than book knowledge." — **John Wise**, manager, information services, Pacific Bell, San Francisco

"We have had a number of people who overcommitted their abilities. It took us three to six months to realize this. It's very expensive to lose a few months of salary and productivity." — **Steve Goodman**, director, Texas Employment Commission, Austin

"Yes. My prior firm hired a programmer for an account who supposedly had three to four years' experience in CICS and Cobol II. He talked a good game but was quickly booted out two weeks after beginning. Luckily, it was a large client that we didn't lose."

— **Tom Bell**, recruiter, Keane, Inc., Denver

"It happens, but not often. A while back we hired someone who sold himself as a systems analyst. He was really a user analyst. Once we started giving him projects, it became pretty obvious that it wasn't going to work out." — **Joe Hunter**, IS manager, Baltimore Gas & Electric Co., Baltimore

"Yes. Every time we gave this person a particular project or task, they would put it off or ask someone else to do it. We finally had to put the person on a performance plan and eventually let them go." — **Kim Whitney**, human resources manager, Walker Interactive Systems, Inc., San Francisco

Source: Bookman Consulting, Inc., New York

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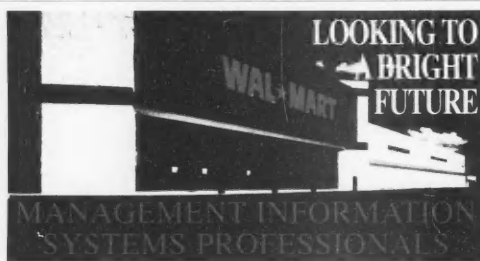
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- COMMUNICATIONS ENGINEERS:** Requires TCP/IP, Routers, LAN troubleshooting, and Unix experience Multi-plexors, T1/T3 experience is a plus
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MANUFACTURING PROJECT ENGINEER - Design of manufacturing process of tooling and equipment for manufacturing. Design process improvements for manufacturing. Evaluate and recommend proposals for effective automation solutions. Support product engineering through the product launch cycle. Design, develop and trouble shoot for equipment automotive controls. Support estimator with production quotes. Train technicians in use of CNC machines. Evaluate and recommend tooling and equipment suppliers. Req'd M.S. in Industrial Engineering with 6 months exp. in the job offered or 6 months exp. in a related occupation such as Management Trainee. Academic background must include graduate level courses each in: Design/Engineering Experience, Analysis/Decision Process, Math/Tools/Industrial Engineering, Advanced Factory Planning, Database Concepts for industrial Management Systems. Resumes with experience in the area of SPC procedures, CNC machines and PLC. 40 hrs/wk. 8:00 am - 5:00 pm, \$40,280 per year. Send resumes to: 7310 Woodward Ave., Rm. 415, Detroit, MI 48202. Ref #34395. "Employer Paid Ad."

Software Engineer to develop Graphical User Interface (GUI) for analysis software developed in-house for various analysis applications across the auto industry such as plotting, modeling & suspensions analysis using C/C++, X Windows & Motif based GUI development & analysis; also using TCP/IP communication protocol based network environment. Req's: M.S. in Comp. Sci. & 6 mos. related exp. in job offered or 6 mos. related exp. as Software Engineer, Programmer Analyst, Systems Analyst, Programmer or Consultant. Related exp. must include X-Windows/OSF Motif based GUI development & analysis; also using TCP/IP, C/C++ & UNIX. Must have 1 grad. level course each in: Design & Analysis of Algorithms, Operating System Design, Object Oriented Programming, & Database Management System Theory; \$33,200/mo., 40 hrs/wk. 8a-5p. Send resume to: 7310 Woodward Ave., Room 415, Detroit, MI 48202. Ref #26395. Employer Paid Ad.

Programmer/Analyst (Plano, TX) Analysis, design & programming of computerized order fulfillment & invoice system in IBM (MVS/ESA) mainframe & PC environments in COBOL, COBOL II and DB2/SQL, incorporating JACKSON structured programming & design techniques. Two yrs. exp. in job offered, \$38,500/yr., Mon-Fri, 9-5 (40 hrs/wk.). Apply to Mary Milica, Ref #V-IL 11773-M, no calls, an employer paid ad.

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## Computer Careers Midwest

Mississippi State University

### Project Leader

Mississippi State University is seeking applications for the position of Project Leader for financial systems. This is a senior level position within Administrative Data Processing responsible for directing, supervising and coordinating the efforts of systems analysts and programming personnel. The person filling the position will be assigned to a broad scope of systems projects to provide direction and control within the specifications of project requirements; will provide technical and administrative direction to the development of new programs and to the maintenance and support of operational systems; will review personnel performance; and will be a direct liaison with the management and personnel of the user departments. Additional responsibilities include fulfilling the detail duties of a systems analyst and those of a programmer, as required.

Minimum qualifications include a bachelor's degree in a computer related field and eight years of successful employment with a record of increasingly responsible experience developing computer systems, two years which must have been as a systems analyst. Any equivalent combination of education and experience may be substituted if approved by the hiring official and the department of Human Resources Management. Candidates must possess considerable knowledge of general management theories and techniques; thorough understanding of general accounting principles; expertise in systems analysis; strong programming skills; and experience with a relational database management system. Excellent interpersonal and communication skills are essential. Desirable qualifications include supervisory experience; and knowledge and/or development experience with Oracle, C, Cobol and/or Unix.

Applications will be accepted through March 24, 1995 or until position is filled. Interested candidates should submit a letter of application, resume and the names of three references to: **Danny M. Kemp, Mississippi State University, Computing Center and Services, P.O. Box CC, Mississippi State, MS 39762.** MSU is an AA/EEO Employer.

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This position supports Sybase and additional RDBMS in a UNIX Operating System. Must have 3-5 years of experience working with SQL Server performance and tuning. Knowledge of Gateway Configuration, UNIX Shell Scripts, TCP/IP, Powerbuilder, DB2 and IBM Mainframes would be a real plus. Experience with distributed database design, UNIX/ADP, and C/S RPC Development preferred. **Job Code: DMF-HC2.**

#### ■ DB2 Database Administrator

Will perform installation, documentation, standards/procedures, and problem diagnosis/resolution for system software and support products. Will also design, code, test and document complex system support programs and provide technical support where needed. Must have a Bachelor's degree and at least 4 years of related experience. **Job Code: DMF-HC.**

#### ■ IMS Database Administrator

Will develop and support recovery procedures for IMSVS DB/DC and FastPath Databases in a data sharing environment running full-function DBRC. Disaster recovery experience and IMS Application programming experience desired. **Job Code: DMF-HC3.**

#### ■ IBM Mainframe Programmers

Candidates must have strong COBOL, FOCUS, and EZTRIEVE+ programming experience. IMS DB Online and batch coding skills along with knowledge of ISPF, SDSF, JCL Fileaid preferred. Knowledge of Genesys desired. Excellent organization, problem-solving, and analytical skills required. **Job Code: DMF-MJP.**

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Must have 1-3 years of experience developing Lotus Notes database and applications. Familiarity with Lotus Notes VIP a plus. Experience working with the Notes API desirable. Will be required to provide enhancements to existing notes applications. **Job Code: DMF-JB.**

#### ■ PC Programmer

Client-server integration skills, PC-LAN/WAN programming and GUI front-end development experience required. Visual Basic, MS Access, SQL Database and AS/400 experience are all preferred. **Job Code: DMF-BO.**

#### ■ Telecommunications Professional 1

This individual will stay abreast of emerging network technology, develop techniques to facilitate technology insertion into existing internetwork environment, and provide expert consultative services across all Telecommunications functional areas with emphasis on WAN Backbone and rapidly growing requirements for client server application. Must have 5 years of experience with Network topologies, Ethernet, Token Ring, TCP/IP, IPX, SNA and Netbios. **This position will be located in Richmond, VA. Job Code: JPM-R/N1.**

#### ■ Telecommunications Professional 2

Will provide Network Engineering and Design in support of NationsBank LAN/WAN. Must have 3-5 years of experience with LAN/WAN topologies and protocols as well as knowledge of Ethernet, Token Ring, TCP/IP, IPX and Netbios. Experience with Physical Distribution and delivery systems such as cabling and wiring standards, Fiber Optics, Routers, Intelligent Hubs, and associated configurations as it relates to design are required. **This position will be located in Richmond, VA. Job Code: JPM-R/N2.**

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This individual will serve as the "telecommunications consultant" to a broad range of technical and strategic projects. Must have 10 years of experience in telecommunications technology and management, an in-depth telecommunications knowledge including LAN/WAN and voice/data systems, an understanding of emerging telecommunications technology and industry standards, and exposure to a broad range of technologies. **Job Code: JPM-CG.**

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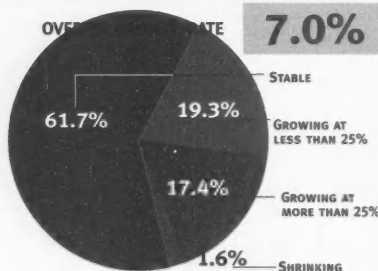
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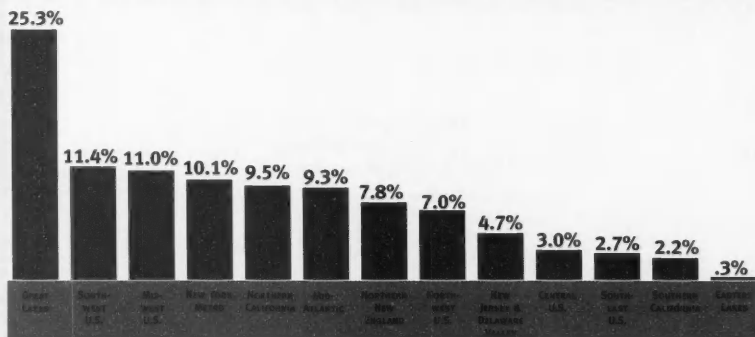
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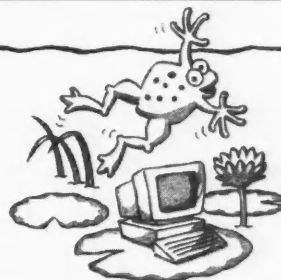
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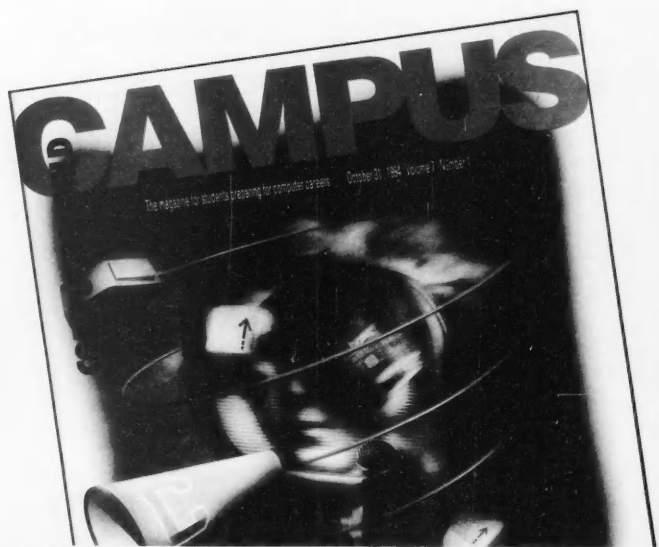
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**Planned Editorial Features:**

(subject to revision)

- The best places to work in IS
- Companies where computer career students want to work.
- Information Systems salaries from Computerworld's annual survey with the Association for Systems Management
- And much more!





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A software developer based in Chicago, cfSOFTWARE has been providing communications solutions to computer professionals in the IBM and compatible arena for over a decade. Because *Computerworld* appeals to a large base of both mainframe and PC professionals, Vice President Mary Cooper just recently expanded the company's *Computerworld Direct Response Card* advertising to include all three of their communications products.

"To generate sales for Across the Boards, a communications toolkit for developing cooperative applications, and pcMAINFRAME, a generalized micro-to-mainframe file transfer system, cfSOFTWARE has been advertising in *Computerworld Direct Response Cards* almost from the very start. Now, based on our past success, we've also started to advertise pc2POWER, our newest file transfer system. Since all of our products facilitate mainframe-to-micro communication, we need to reach IS managers and technical support professionals on the mainframe side as well as end users on the PC side. That's why *Computerworld Direct Response Cards*, with their large audience of buyers most apt to need our products, are one of our primary advertising vehicles.

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# Marketplace

## CURRENCY CONFUSION

Dealing with foreign currencies is a big hurdle when purchasing equipment for global operations. Currency fluctuations can't be controlled, but they can be managed.

By Thomas J. Howard

Differences in languages and laws, lengths and weights, time zones and customs are all concerns for those involved in international business. But of the lot, dealing with foreign currency exchange rates causes the greatest confusion and frustration in the global purchasing environment.

Computer software and hardware costs heavily depend on the exchange rate between the U.S. dollar and the local currency, making even the savviest procurement manager want to scream. But buyers who learn to make the most of the fluctuations will get a better deal for the computing power they acquire.

As with most purchases, both in the U.S. and abroad,

getting the best price shouldn't be your only goal. You should expect vendors to provide products and services where and when you need them. Moreover, the quality of the vendor's service and support should be excellent.

If you're new at this game, you'll soon learn that there are things you can control and things you can't (see story at right). Overall, you're generally at the mercy of exchange rate fluctuations, but it's important to watch them so you can maintain some sense of management.

### Grasping it all

To understand how confusing it can get, let's assume you have a branch office in Mexico and a central purchasing agreement with a PC vendor in the U.S. The prices listed in the agreement are in U.S. dollars.

If the arrangement was in effect in December 1994, your costs have changed dramatically. A \$1,500 PC cost 4,575 pesos on Dec. 20. On Dec. 22, the peso was devaluated 15% by the Mexican government. This means the same PC then cost 5,261 pesos. One month later, it cost 7,800 pesos. That's a 70% decrease in the value of the peso relative to the dollar. Now your Mexican branch office must come up with 70% more pesos to buy that PC.

As you'll find, procuring equipment in a foreign land doesn't have to be all that bad. Managed properly, currency exchange fluctuations can be one less thing to worry about. The trick is to spend a little time learning how to make currency work for you, giving you more time to worry about issues that really matter—the quality, reliability, performance and scalability of your new systems. ■

Howard is a senior vice president, international at Tricord Systems, Inc. in Plymouth, Minn. He is also author of *Global Expansion in the Information Age: Big Planet, Small World* published by Van Nostrand Reinhold.

### Make the most of YOUR MONEY

Any global enterprise must deal with currency issues. Governments will fix duty rates, carriers will set freight charges, and brokers will establish fees for clearing shipments. Currency is black magic. You can't control it, but you can manage it. Here's how:

- Purchase and use your computing products in the same country when possible. If you have a central purchasing agreement with a global vendor, have the product delivered and paid for locally. This may limit your exposure to the fluctuations in exchange rates between the local currency and the dollar.

Your vendor's cost, however, is probably based in another currency. You may buy and accept delivery of PCs in Belgium but their cost base is probably not in Belgian francs. In this case, share the risk with the vendor. Provide a mechanism through which you can change prices quarterly if the relevant exchange rate fluctuates more than 10%.

- If you buy on a case-by-case basis without a central purchasing agreement, watch the exchange rates to see if there are trends to exploit. If prices change slowly in a country whose currency is weak, take advantage. Convert your strong currency into the weaker one and buy in that country.

- Gambling on currency rate fluctuations over an extended period of time is risky. Don't try this at home. Experts, primarily banks, can minimize your risk, so get your financial people to hedge currency fluctuations.

- Adjust your purchasing policies and procedures regularly to reflect changes in the global purchasing environment. In other words, monitor exchange rates and keep tabs on trade relations among nations in which you do business. The General Agreement on Tariffs and Trade and the North American Free Trade Agreement are examples of trade initiatives that will impact not only trade barriers but also currency exchange rates.

— Thomas J. Howard

### What you're up against

When buying equipment for overseas offices, watch currency fluctuations to lessen the exchange impact. The following example shows the difference a few years can make in foreign prices.

Exchange rates indicate that it took 123.5 yen to buy one U.S. dollar on Jan. 20, 1992, and 99.5 yen on Jan. 20, 1995.

	Japanese yen	German deutsche mark	Mexican peso
Jan. 20, 1992	123.5	1.59	3.06
Jan. 20, 1993	124.9	1.60	3.08
Jan. 20, 1994	113.4	1.75	3.10
Jan. 20, 1995	99.5	1.51	5.04

A \$1,500 PC would cost the following in those currencies based on the above exchange rates:

	Japanese yen	German deutsche mark	Mexican peso
Jan. 20, 1992	185,250	2,385	4,590
Jan. 20, 1993	187,350	2,400	4,620
Jan. 20, 1994	167,100	2,625	4,650
Jan. 20, 1995	149,250	2,265	7,560

A \$1,500 PC purchased in Japan today would cost 24.1% less yen than it would have cost three years ago. In Mexico, that same purchase would require 64.7% more pesos.

Difference	-19.4%	-5%	64.7%
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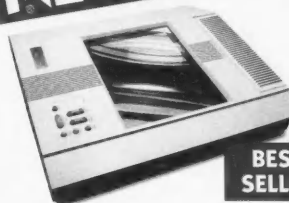
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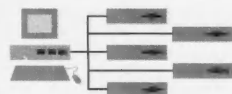
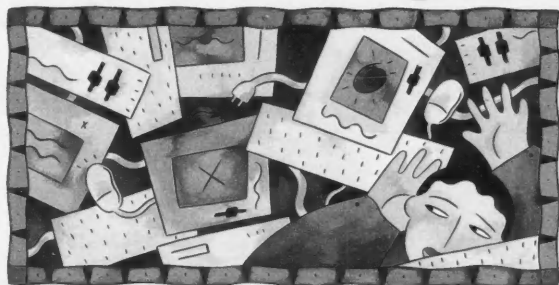
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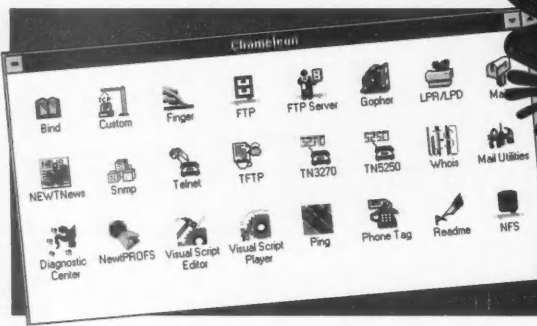
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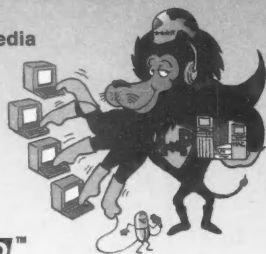
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# Feb. 17 Stock Ticker

## Gainers

Percent

AT&T DIMENSION	48.6	MICROPOLIS CORP.	-28.9
BROOKTRON TECHNOLOGY	37.2	CINTEGRON CORP.	-13.5
IMC(S)	25.0	SAPPHIRE INTL. CORP. (N.V.)	-12.2
HARRIS COMPUTER SYSTEMS CORP.	18.5	MAXTOR CORP.	-11.6
MACFARLANE ASSOCIATES (H)	13.7	PARALLAN COMPUTER	-11.5
TELENET CORP.	13.2	FTP SOFTWARE INC.	-11.0
PICTURETEL CORP. (H)	12.6	NETMAGE INC.	-9.8
HEWLETT PACKARD CO.	9.75	INTUIT INC.	-4.69
IMC(S)	7.00	MOTOMOLA INC.	-4.13
BROOKTRON TECHNOLOGY	4.00	NETMAGE INC.	-4.00
MICROKOR TECHNOLOGY (H)	3.63	AT&T CORP.	-3.38
ZILOG INC.	3.25	FTP SOFTWARE INC.	-3.25
ITT CORP. (H)	3.25	MICROPOLIS CORP.	-1.88
PICTURETEL CORP. (H)	3.06	MICROSOFT CORP.	-1.88
BMC SOFTWARE INC.	2.81	AMERICAN POWER CONVERSION	-1.75

ORACLE CORP. STOCK RISE SLIGHTLY FOLLOWING NEWS THAT IT HAD SIGNED A LETTER OF INTENT WITH SONY CORP. TO DEVELOP A NEW LINE OF DATABASE PRODUCTS.

## Losers

Dollar

## Microsoft maintains its course

Last week's headlines on Microsoft Corp.'s (MSFT) latest brush with the antitrust brigade would have investors believe the software giant's stock just took a severe punch in the gut (see story page 1).

But the reaction on Wall Street immediately following U.S. District Court Judge Stanley Sporkin's ruling was anything but frantic. Indeed, analysts across the board seemed to sum up the ruling's stock impact as just another blip on the screen. Long-term risk, they said, will be minimal.

Analysts attributed the stock market's lackluster reaction to a general lack of surprise over Sporkin's decision.

"This judge has openly expressed his dissatisfaction with the settlement," said Neil Weintraub, an analyst at Hambrecht & Quist in San Francisco. "Some people might have expected a tremendous impact on Microsoft stock, but it clearly isn't there."

"There's a lot less here than meets the eye," said John Gantz, senior vice president of International Data Corp. in Framingham, Mass. "If anything is going to affect Microsoft's stock, it would be that Windows 95 is late."

Indeed, several analysts said they were already recommending a Hold on Microsoft stock because of Windows 95 shipping delays. Others cited the uncertainty of whether the company will be able to acquire Menlo Park, Calif.-based Intuit Corp. and the slowdown in Microsoft's upgrade momentum.

Overall, analysts described Microsoft as "very healthy." And most said they will likely maintain their Hold ratings until until things with the Justice Department settle down.

"Not knowing what the Department of Justice will do next is an unknown that adds a little bit of risk to investing right now, but in the long run, it's just another passing cloud," said Laura Lederman, an analyst at William Blair & Co. in Chicago.

"Frankly, even if they do something as draconian as splitting the company in two, it would probably just create more good investment opportunities," she said.

—Erin Callaway

Is there an industry or company you would like to see covered in Computerworld's stock column? Send your suggestions and comments to Erin Callaway via the Internet at [erin@cw.com](mailto:erin@cw.com) or Tim Ouellette at [tou@cw.com](mailto:tou@cw.com).

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OTC 19.75 12.75	BANYAN SYSTEMS INC.	17.00 0.00 0.0
OTC 43.88 18.63	BAY NETWORKS INC.	51.50 -0.13 -0.4
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OTC 40.50 21.00	CHIRCOM CORP.	46.88 -1.38 3.0
OTC 40.75 18.75	CISCO SYSTEMS INC.	33.75 -1.50 -4.3
OTC 13.75 6.13	COMPRESSION LABS INC.	7.75 -0.25 -3.1
OTC 11.25 5.13	COMPUTER NETWORK TECH.	7.75 0.56 7.8
OTC 22.75 7.50	CROSSCOM	13.25 0.00 0.0
OTC 13.13 2.00	DATA SWITCH CORP.	3.81 0.00 0.0
OTC 38.25 17.88	DISC COMMUNICATIONS	36.75 1.00 2.8
OTC 39.25 10.00	FORE SYSTEMS INC. (H)	36.25 -1.25 -3.3
NYS 35.88 10.00	GIGALOG SYSTEMS INC.	24.50 0.13 0.5
NYS 36.38 29.50	GLOBAL SYSTEMS CORP.	32.00 -0.50 -1.5
NYS 98.25 77.00	ITC CORP. (H)	98.00 3.25 3.4
OTC 27.75 17.25	MCI COMMUNICATIONS CORP.	19.63 -0.75 -3.7
OTC 15.75 7.50	MICROMICRO SYSTEMS CORP.	8.25 0.25 3.1
OTC 12.63 4.50	MICROCOM INC.	10.25 -1.00 -8.9
OTC 10.50 4.00	NETEX CORP.	8.75 0.00 0.7
OTC 8.00 3.25	NETWORK COMPUTING DEVICES	5.63 0.00 0.0
NYS 27.75 7.38	NETWORK EQUIPMENT TECH.	26.00 -0.50 -1.9
OTC 20.50 13.88	NETWORK GENERAL INC.	26.75 -1.88 -7.0
OTC 9.38 5.00	NETWORK SYSTEMS CORP.	9.75 -0.13 -2.1
NYS 63.38 26.50	NEWEDGE NETWORKS CORP.	40.13 -1.50 -3.6
OTC 27.75 26.00	NORTHERN TELECOM LTD.	20.13 -0.75 -3.4
OTC 26.25 13.38	NOVELL INC.	20.13 -0.75 -3.6
NYS 40.25 33.25	NYNEX CORP.	38.25 0.00 0.0
OTC 30.00 15.50	OCTEL COMMUNICATIONS CORP.	2.88 0.00 0.0
OTC 37.50 12.00	OPTICAL DATA SYSTEMS INC. (H)	33.25 0.00 0.0
OTC 7.50 2.13	PENRIL DATA COMM NETWORKS	3.25 -0.25 -7.1
OTC 27.31 10.00	PICTURETEL CORP. (H)	27.31 3.06 12.4
OTC 8.13 2.13	PROTECH INC.	6.13 -0.38 -5.8
OTC 12.38 2.75	RACOTEK INC.	5.00 0.38 8.1
OTC 10.50 3.50	RETEL (L)	9.13 0.38 9.8
NYS 23.25 12.44	SCIENTIFIC ATLANTA INC.	21.88 0.50 2.3
NYS 44.38 37.38	SOUTHWESTERN BELL CORP.	41.50 -1.50 -3.5
OTC 13.13 25.88	SPRINT CORP.	26.75 -1.88 -7.0
OTC 31.63 13.38	STANDARD MICROSYSTEMS CORP.	29.13 -0.56 -1.9
OTC 43.25 6.50	STRATACOM INC.	37.63 -0.63 -1.6
NYS 15.25 3.88	TELENET CORP.	16.63 13.3 13.8
OTC 55.50 24.00	US ROBOTICS	53.50 0.75 1.4
NYS 43.75 34.63	U.S. WEST INC.	38.88 -0.38 -1.0
NYS 28.13 12.75	VERIZON COMMUNICATIONS INC.	17.00 0.75 4.4
OTC 28.00 8.00	XYLOGICS INC.	25.13 -1.63 -6.1

UP 0.93%

PCs and Workstations

OTC 7.50 3.50	ADVANCED LOGIC RESEARCH	4.50 0.13 2.9
OTC 40.00 24.63	AST RESEARCH INC.	22.63 -0.88 -2.5
OTC 32.75 10.38	AST RESEARCH INC.	15.13 -0.88 -5.5
NYS 44.38 29.50	COMPACT COMPUTER CORP.	37.00 -0.50 -1.3
OTC 27.75 11.00	CONQUEST SYSTEMS CORP.	24.75 -1.25 -5.1
OTC 25.25 9.25	GATEWAY 2000 INC.	20.44 -0.63 -3.0
NYS 114.50 71.88	HEWLETT PACKARD CO.	114.50 9.75 9.3
NYS 35.38 18.75	IBM	34.75 0.63 2.8
OTC 37.63 18.25	SUN MICROSYSTEMS INC.	33.44 -0.81 2.5
NYS 52.38 30.75	TANDY CORP.	45.88 -0.25 -0.5
OTC 11.75 2.38	TECH INTERNATIONAL LTD.	10.13 -0.13 -1.2

UP 1.61%

Large Systems

ASE 12.00 5.25	AMDAHL CORP.	11.25 0.50 4.7
NYS 8.88 4.38	CONVEX COMPUTER	6.25 -0.25 -3.8
OTC 2.75 0.50	CRAY RESEARCH INC.	1.06 -0.09 -8.0
NYS 33.75 14.63	CRAY RESEARCH INC.	16.13 0.63 4.0
NYS 12.00 6.63	DATA GENERAL CORP.	7.88 -0.50 -6.3
NYS 38.75 18.25	DIGITAL EQUIPMENT CORP.	35.38 -0.50 -1.3
OTC 6.38 1.72	ENCORE COMPUTER CORP.	2.88 -0.13 -4.3
OTC 17.50 6.50	HARRIS COMPUTER SYSTEMS CORP.	16.25 0.50 18.2
NYS 18.00 51.38	IBM	75.50 0.13 0.2
OTC 17.25 5.00	NETFRAME	6.50 0.25 4.0
OTC 13.75 3.63	PARALLAN COMPUTER	5.75 -0.75 -11.5
OTC 16.00 5.38	PERAMOUNT TECHNOLOGY	15.88 0.00 0.0
OTC 21.25 11.13	SEQUENT COMPUTER SYS.	17.75 1.38 8.4
OTC 6.84 3.13	SEQUOIA SYSTEMS INC.	3.81 -0.50 -11.6
NYS 39.88 22.88	STRATUS CORPORATION	27.50 -1.25 -4.3
NYS 19.75 10.50	TANDEN COMPUTERS INC.	17.38 -0.13 -0.7
OTC 22.00 8.88	TRICORD SYSTEMS	9.63 -0.50 -5.2
NYS 16.50 8.25	UNISYS CORP.	5.25 -0.50 -8.1

UP 2.68%

Software

OTC 38.50 21.50	ADOBE SYSTEMS INC.	34.25 2.50 7.9
OTC 6.38 2.50	AMERICAN SOFTWARE INC.	2.88 -0.13 -4.2
OTC 41.50 23.25	AUTODESK INC.	35.75 1.50 4.4
OTC 5.38 1.75	BACHMAN INFO. SYSTEMS	4.75 -0.13 -2.6
OTC 29.00 20.50	BGS SYSTEMS INC.	28.00 1.50 5.7
OTC 71.00 40.25	BMC SOFTWARE INC.	60.56 2.81 4.9
OTC 30.25 15.31	BOOLE & BABBAGE (H)	29.75 1.25 4.4
OTC 15.13 6.00	BORLAND INT'L INC.	7.69 -0.25 -3.1
OTC 22.25 6.00	BROCK CONTROL SYSTEMS INC.	7.50 0.19 2.6
OTC 4.00 1.78	CE SOFTWARE	3.75 0.13 3.4
ASE 30.25 6.00	CHEYENNE SOFTWARE INC.	15.00 0.00 0.0
OTC 19.88 9.75	CINTEGRON CORP. (H)	19.69 1.19 6.4
NYS 56.00 27.38	COMPUTER ASSOCIATES (H)	55.63 1.00 1.8
NYS 6.13 2.50	COMPUTERVISION CORP. (H)	5.75 0.38 7.0
OTC 49.25 31.25	COMPUTERVISION CORP.	37.75 0.75 2.0
OTC 17.25 9.00	COMSHARE INC.	16.50 -0.25 -1.5
OTC 16.75 10.13	COREL CORP.	12.00 0.13 1.1
OTC 14.25 7.25	DATAMARK TECHNOLOGIES INC.	12.00 0.25 11.6
OTC 6.75 2.25	EASEL CORP.	3.09 0.09 3.1
OTC 37.75 14.25	FRANET CORP. (H)	32.25 -0.50 -1.5
OTC 12.50 3.00	FRAMTECHNOLOGY	6.69 2.19 48.6
OTC 19.25 8.13	FRAME TECHNOLOGY	17.13 -0.38 -2.1
OTC 35.25 11.50	FPT SOFTWARE INC.	26.38 -3.25 -11.0
OTC 11.00 7.00	GENCOM SOFTWARE	10.00 0.25 2.6
OTC 31.75 6.75	GUPITA	11.38 -0.25 -2.2
OTC 10.75 5.13	HOGAN SYSTEMS INC.	5.75 0.13 2.2
OTC 44.75 18.00	IMC(S)	44.75 7.00 18.5
OTC 28.50 11.25	INFORMATION RESOURCES	14.50 0.00 0.0
OTC 38.75 14.25	INFORMIX CORP. (H)	36.38 -1.13 -3.0
OTC 13.63 7.38	INTERGRAPH CORP. (H)	13.38 -0.81 6.5
OTC 8.75 2.50	INTERLEAF INC.	10.53 -0.13 -2.7
OTC 18.25 8.63	INTERPOLY INC.	15.75 1.13 7.7
OTC 37.25 17.00	INTUIT INC.	63.88 -4.69 -8.8
OTC 37.25 19.00	LEGENT CORP.	30.25 0.50 1.7

KEY: (H) = NEW ANNUAL HIGH REACHED IN PERIOD (L) = NEW ANNUAL LOW REACHED IN PERIOD

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FEB. 17 NY NET W/ PCT 3PM CHANGE CHARGE

UP 0.17%

Semiconductors

OTC 86.50 29.75	LOTUS DEVELOPMENT	45.50 1.50 -3.2
OTC 17.75 9.38	MAGIC SOFTWARE ENTERPRISES	5.50 -0.06 -1.1
OTC 15.50 6.00	MANUFACTURING GROUP INC.	11.00 0.25 2.3
OTC 27.50 14.75	MARINHO CORP.	25.25 0.25 1.0
OTC 6.75 1.44	MATHSOFT INC.	3.06 -0.13 -4.2
OTC 21.00 6.50	MCALFEE ASSOCIATES (H)	20.75 2.50 13.7
OTC 12.75 9.38	MENDOR GRAPHICS	12.88 0.00 0.0
OTC 20.00 11.50	MICRO FOCUS	11.88 0.00 0.0
OTC 10.38 4.63	MICROGRAPHX INC.	6.50 -0.25 -3.7
OTC 65.25 19.13	MICROSOFT CORP.	60.38 -1.88 -3.0
OTC 45.00 11.25	NETMAGE INC.	37.00 -4.00 -9.8
OTC 46.50 26.25	ORACLE CORP.	45.88 1.56 3.5
OTC 40.25 21.50	PARAMETRIC TECHNOLOGY	38.50 1.13 3.0
OTC 24.50 13.38	PACIFICRIDGE SYSTEMS INC.	18.25 0.00 0.0
OTC 39.50 13.00	PEOPLESOPH	35.56 -0.44 -1.2
OTC 8.50 4.38	PHOTONIC TECHNOLOGIES	7.68 -0.11 -1.6
OTC 87.25 35.50	POWERSOFT	74.00 2.38 3.1
OTC 14.75 3.50	PLATINUM SOFTWARE	8.38 -0.13 -1.5
OTC 24.50 11.00	PLATINUM TECHNOLOGY	24.50 1.50 6.5
OTC 56.75 27.00	PROGRESS SOFTWARE CORP.	50.75 2.75 5.7
OTC 4.38 1.88	QUANTUM DATA SERVICE SYS. (H)	4.13 0.25 6.5
OTC 20.75 9.50	RAINBOW TECHNOLOGIES INC.	17.13 0.25 1.5
OTC 8.25 2.00	RASTEROPS	4.45 -0.05 -1.0
OTC 7.13 2.88	ROSS SYSTEMS	5.06 0.31 6.6
OTC 15.25 0.50	SAPPHIRE INTL. CORP. (N.V.)	2.00 -0.13 -13.5
OTC 28.63 7.25	SOFTECH INTERNATIONAL INC.	25.60 0.50 2.0
OTC 7.63 3.00	SOFTWARE PUBLISHING CORP.	4.13 0.38 10.0
OTC 10.00 5.00	STATE OF THE ART	9.13 0.13 1.4
OTC 36.25 15.00	STERLING SOFTWARE INC.	36.25 0.50 1.4
OTC 16.50 3.63	STRAT. DYNAMICS RESEARCH	6.50 0.06 1.0
OTC 57.00 35.25	SYBA INC.	57.00 1.50 2.6
OTC 21.50 9.75	SYNTECH CORP. (H)	20.38 0.69 3.5
OTC 50.50 33.00	SYNOPSIS	48.63 -0.25 -0.5
OTC 20.88 10.63	TECHNOLOGY SOFTWARE ASSOC. (H)	20.88 0.25 1.2
OTC 6.88 3.25	TECHNIZ CORP.	6.88 1.38 25.0
OTC 30.00 7.88	VIEWLOGIC SYSTEMS	25.00 0.75 7.9
OTC 13.25 5.50	VMARK SOFTWARE INC.	12.25 0.13 1.2
OTC 13.25 5.50	WALKER INTERACTIVE SYSTEMS	7.13 -0.50 -6.6
OTC 60.00 29.25	WALL DATA INC.	45.00 2.00 4.7

UP 0.17%

Peripherals and Inkjet Systems

NYS 32.25 21.00	ADVANCED MICRO DEVICES	30.63 -0.63 -2.0
NYS 24.50 16.34	ANALOG DEVICES INC.	22.63 -0.25 -1.1
OTC 37.63 19.75	AT&T CORP.	31.63 -3.38 -9.6
OTC 8.88 3.63	CHIPS AND TECHNOLOGIES	8.88 0.25 2.8
OTC 42.50 21.00	CIRCUIS LOGIC	32.63 -0.25 -0.8
NYS 28.00 13.38	CYPRESS SEMICONDUCTOR CORP. (H)	26.75 0.50 1.9
OTC 13.38 13.38	DALLAS SEMICONDUCTOR	16.13 0.75 4.6
OTC 31.50 14.75	INTEGRATED SILICON SYSTEMS	28.75 0.75 2.7
OTC 80.00 56.00	INTEL CORP. (H)	79.25 1.50 1.9
OTC 17.00 17.00	LSI LOGIC CORP. (H)	16.75 0.75 4.4
OTC 25.25 14.50	LATTICE SEMICONDUCTOR (H)	23.88 0.88 3.8
NYS 55.63 26.25	MICRON TECHNOLOGY	55.38 3.63 7.0
OTC 12.13 42.13	MOTOROLA INC.	46.63 -4.13 -6.6
NYS 25.00 16.38	NATIONAL SEMICONDUCTOR	17.75 0.50 -2.7
OTC 22.50 6.75	SERIAL SEMICONDUCTOR (H)	21.63 0.25 1.2
OTC 15.00 6.25	TEXAS INSTRUMENTS	15.00 0.25 1.7
OTC 16.38 10.25	VLSI TECHNOLOGY	13.88 -0.06 0.4
OTC 8.75 1.78	WEITEK	3.38 0.13 3.8
OTC 13.38 13.38	WESTERN DIGITAL CORP.	13.38 0.13 1.8
OTC 65.25 29.00	XILIX INC.	63.88 1.13 1.8
OTC 37.75 24.75	ZILOG INC.	33.25 0.25 10.

T	H	E	
C	O	M	P
U	T	E	R
B	O	W	L

He left me swimming

in a stream of compression

algorithms

I could never get him back.

Would never want to. I alone

could reformat my hopes and

dreams. I alone must match wits

in a challenge of intellectual

stamina and tenacity, test my

computer trivia and mettle.

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Somewhere between madness and

success lies The Computer Bowl.

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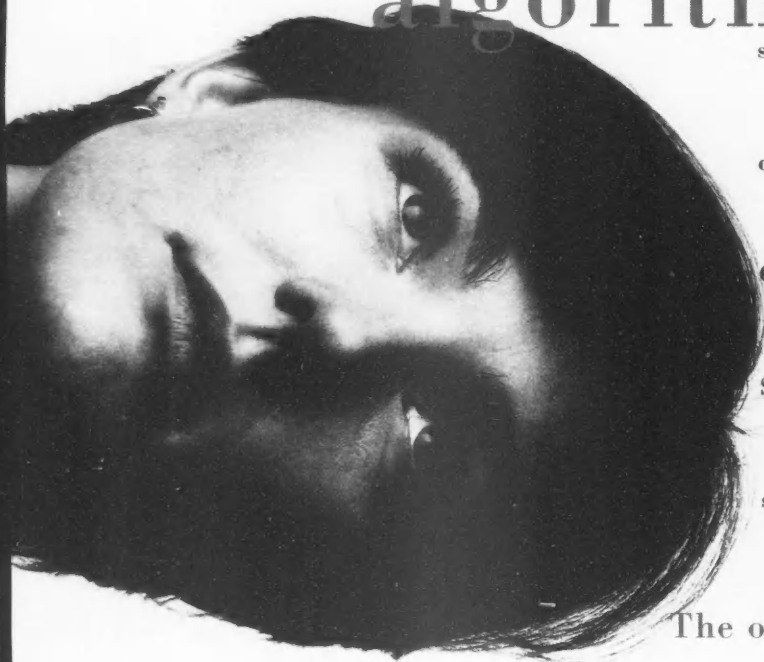
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Film output and production: Wace USA/Walker Graphics.



## Oracle

CONTINUED FROM PAGE 1

at least three years. Oracle has yet to officially announce Oracle 8, but analysts predict it will ship in 12 to 15 months.

"Ellison has been selling Oracle 8 since Oracle 6 came out," said Herb Edelstein, an analyst at Euclid Associates in Potomac, Md. "Ellison is always going around writing checks that other people have to cash."

Still, some large Oracle shops said they hope Sedona's release will mean payday has arrived.

Oracle users want to buy true object-oriented tools from their primary database supplier instead of buying bits and pieces from smaller third parties and then worrying about integration with Oracle's relational database, they said.

Merrill Lynch & Co., for example, has been looking for definitive object-oriented moves from Oracle for some time, said Tony Ziemba, a database technology analyst at Merrill Lynch's investment banking unit in New York. "If I start to do something here with object-oriented tools, I want to know I'm not cutting myself off from the future of Oracle," Ziemba said.

Today, the group uses various tools from different vendors to build investment tracking and forecasting systems. A lack of Oracle-built object products has not stopped Merrill Lynch from dabbling with object tech-

nology, "but it sure would be easier if we could get integrated tools all [from] one source," Ziemba said.

Sedona, in theory, provide such integration as well as a built-in object-relational translation layer, Ziemba said. Merrill Lynch was one of 20 large Oracle customers briefed on the project.

"I can't tell you how important it is to hear from Oracle about real objects.

What there is today ... isn't very much," said Bob Heister, a senior technical consultant at Cincinnati Bell Information Systems, Inc., the computing unit of Cincinnati Bell.

With the Sedona framework, Cincinnati Bell could keep an active rather than static repository of objects, he said. The repository could hold and continuously update at least two types of objects — business rules and production data — and propagate changes out to customer service and other applications.

Yet Oracle should take care not to invent and push an object framework that does not play well with others, Heister added.

Indeed, Oracle is pulling in help from other vendors to provide key parts of Sedona. Sun is helping to form Object Mediator, a message-based translator, according to Abbasi. Object Mediator would, for example, let objects created with Sedona tools communicate with

objects built under Sun's Project Distributed Objects Everywhere.

Key to Sedona is a repository designed to carry out several functions. It would act as a sort of factory where object pieces and models could be assembled and kept until it received messages from applications to invoke them. The repository would also be a way to unite Oracle's enterprise-level Cooperative Development Environ-

### On tap

Other object plans at Oracle include integrating Austin, Texas-based UniSQL, Inc.'s hybrid object-relational database with Oracle 7 late this year. Oracle signed a deal last November to resell UniSQL products to oil and gas companies.

ment (CDE) tools with Power Objects, Oracle's low-end development tool introduced last month, Abbasi said.

Such integration would be crucial for developers trying to build large, companywide applications, said Jeffrey Jacobs, president of the International Oracle Users Group's computer-aided software engineering (CASE) special interest group.

As it stands, Oracle's existing development tools lack integration. For example, developers who want to build a screen with Oracle's CDE Forms generator must duck out of the tool and launch the appropriate Oracle CASE product to get hold of data attributes such as fonts and colors housed in the Oracle CASE dictionary, he explained.

"That shouldn't be," said Jacobs, an independent Oracle consultant in Belmont, Calif. "And that's what we don't want to continue with Oracle's next generation of products."

## NetBill trial run planned for fall

By Ellis Booker

Visa International and Carnegie Mellon University announced plans last week to conduct a trial run of NetBill, Carnegie Mellon's prototype system for billing buyers for small, on-line transactions.

While ordinary credit cards are used today to purchase goods on the Internet, this approach is not suitable for low-cost items such as a page of text or a single database query because the minimum transaction fee for credit cards averages about 30 cents.

"So if you want to sell the page for a dime, you have to mark it up to 40 cents to cover the cost," said Marvin Sirbu, professor of engineering and public policy and industrial administration at Carnegie Mellon. Sirbu and Doug Tygar, an associate professor of computer science, are the directors of the NetBill project.

Although the test this fall will principally involve digital libraries at several universities, both Visa and Carnegie Mellon said they are interested in learning the technical, legal and regulatory issues involved in the wide-scale deployment of an on-line payment system.

"Visa wants to see if this approach works and [if it] is economical," said Bill Powar, vice president of advanced payment system strategies at Visa. Powar said Visa's long-term objective is to add a NetBill capability to standard Visa accounts.

Additional information about NetBill can be obtained at Carnegie Mellon's World-Wide Web site: <http://www.ini.cmu.edu/netbill/>.

## Users build

CONTINUED FROM PAGE 1

bers of users, on-line transaction performance and decision-support response times. While these tests often boast impressive numbers, the results do not provide users with meaningful comparisons with other applications.

However, more serious help appears to be on the horizon with the promise of an independent client/server performance measurement. The Transaction Processing and Performance Council (TPC), for example, has targeted late this year for delivery of its benchmark.

Kim Shanley, chief operating officer of TPC in San Jose, Calif., said the benchmark will measure a "medium level of complexity" for on-line transactions in a client/server environment. It could include up to thousands of users connected via LANs doing "a variety of light to mid-weight transactions, including reads and writes," Shanley said.

In the meantime, a user's best bet is to tackle the job on his own. Based on interviews with several users and industry analysts, the following tactics are now being used to get a fix on an application's performance:

- Conducting modified benchmarks in-house that focus only on certain aspects of an application to save time and money.

- Basing a software contract on the successful completion of an in-house test of the vendor's product or requesting that the vendor run tests up front as part of the deal.

- Considering other users' test results to compare different systems.

But even with these approaches, the job is still difficult because of the complexity of client/server systems.

In the host-based world, the key elements to measure were typically transactions or such systems capabilities as I/O performance. In client/server, performance factors to test include numbers of users, on-line transactions, type of network, network traffic, decision-support

queries and end-user applications.

"I do wonder if there are any client/server installations that are enough alike where a benchmark would help us," said Kevin Reilly, vice president of information systems at Richardson Electronics Ltd. in LaFox, Ill. He has been shopping for client/server applications since mid-1994.

### The cost factor

Another potential problem is cost. Although Thornton declined to provide exact dollar amounts, he said the testing phase of his software selection ate up about 15% to 20% of the total cost of buying and implementing his client/server

system.

Industry analysts said a 20% cost would likely include a full-scale test and pilot. Users can actually plan on spending less, particularly if they bargain with potential vendors to share testing expenses.

John Christopherson, director of IS planning at United Healthcare Corp. in Minneapolis, said he avoided the "very expensive proposition" of testing multiple applications in-house by zeroing in on a particular company's product and working closely with the vendor to test the software. In this case, it was SmartStream from Dun & Bradstreet Software in Atlanta.

"You need to crawl all over the software vendor's architecture and understand where the likely bottlenecks will be," Christopherson said.

One successful tactic that some observers cited is basing a contract with a potential software provider on its ability to test the software and show satisfactory results — before signing on the dotted line.

For users who do not have the time or resources to perform their own tests, some software providers will do a comparison test for a fee. Oracle Corp. in Redwood Shores, Calif., for example, will run tests on its own client/server financial applications on different platforms as well as against other vendors' products.

## No apples to apples

Benchmarking efforts from application vendors include the following:

- **SAP America, Inc.** released a benchmark for R/3 supporting 1,000 users on a Hewlett-Packard Co. four-way HP Corporate Business Server and HP 9000 Model G50 servers. It is typical today for a client/server application to support 100 to 200 users.

- **SQL Financials, Inc.** reported that its general ledger clocks in at 50 to 59 transactions per second, or about

1 million transactions in approximately five hours. The tests were completed on a Sun Microsystems, Inc. SPARCserver 1000 running Sybase, Inc.'s System 10.

- **IBM** announced its AS/400 performed 50% faster in tests against systems from both HP and Compaq Computer Corp. The benchmark measured a collection of processes, including transaction processing, decision support and file serving.

# Wysiwyg

## Spelling bee

A number of readers sent in interesting suggestions that their spell checkers made. Here are some shining examples of computer technology at work:

### Co-workers by any other name ...

The spell checker choked on the word "boldfacing" and suggested the word "bloodsucking" as an alternative. Then it stopped on "coworkers" and thought perhaps I really meant to say "cowpokes." I realize I am from Texas, home of the quaint country phrase, but I still don't refer to my colleagues as cowpokes! (Bloodsuckers, maybe, but never cowpokes!)

— Linda Musthaler, Houston

While working in the UK for a hospital's software vendor, when the word "colleagues" was used in a document, the UK lexicon would return "scalawags" as an option.

— John Harding, Marietta, Ga.

### Name-calling

I get some interesting suggestions for my last name, "Togasaki." The complete list of suggested corrections is: Goatsucker, Galactoside, Tackiest, Gawkiest, Talkiest, Toadstool. Do you think they're trying to tell me something?

— John Togasaki, Mountain View, Calif.

Both Microsoft Word and WordPerfect will attempt to replace the name "Myron" with the word "moron." Of course, Myron is the first name of our director of human resources. It makes me laugh every time it comes up.

— Angela Toomer, Montclair, N.J.

When I checked the spelling of a letter to one of my U.S. senators, ClarisWorks did not recognize the name "D'Amato" and offered only two alternatives: "dimwit" and "demote."

— Tom Olin, Waterville, N.Y.

### Best little what in Texas?

Bob O'Hern of Beltsville, Md., accidentally typed "warehouse" and was told warehouse was a better replacement.

WYSIWYG COMPILED BY TIM OUELLETTE; ILLUSTRATION BY DAVID WAUGH



Instead of saying "All computer systems will be barcoded" for inventory purposes, a document was published stating "all computer systems will be barricaded..."

— Jim Vecht, Seattle

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## Inside Lines

### August launch anticipated for OS/2 4.0

Faced with the looming threat of Microsoft's Windows 95, IBM will release in August the 4.0 version of OS/2 that will be able to run Windows 95 and Windows NT, a report last week in *Computerworld/Norge* in Oslo said. The story cites internal IBM sources and notes that IBM has rescheduled the launch in order to steal thunder from Microsoft's Windows 95 unveiling, also slated for August.

### Playing well with others ... for a change

Next Computer is expected this week to announce plans to make the NextStep and OpenStep object-oriented systems comply with Common Object Request Broker Architecture standards, according to sources close to the company. Such compliance could help bring Next into corporate IS, which is increasingly demanding that enterprise-level tools play well with others. Word has it, too, that Next CEO Steve Jobs will crow a bit about his company's financial health, which is estimated to be good — sales topped \$40 million in 1994, making it Next's first profitable full year.

### Sybase bellies up to client/server partners

Sybase is seeking an entree into the exploding client/server applications market, but unlike rival Oracle, it will not build such packages itself. Instead, the Emeryville, Calif., vendor is expected next month to unveil tight partnerships with selected financial, manufacturing and other applications makers to push packages supporting its System 10 and upcoming System 11 databases, sources close to the firm said. PeopleSoft, Avalon and others will get engineering help to port their applications to Sybase's database.

### This is a stack-up

IBM's expected delay in completing a promised volume-stacking capability for its upcoming NTP high-capacity tape drive is encouraging rival Storage Technology to take a crack at developing a similar feature for its new RedWood tape device. StorageTek previously said RedWood would not support volume stacking, which lets commercial users put multiple logical tape volumes on a single cartridge. But the firm is striving to make RedWood into more than just a niche product for government spooks and seismic macho-processors. A tape marketing exec now says the firm hopes to have stacking in place by early 1997. IBM's stacking feature may not be ready until the second half of next year, analysts said.

### How about some syrup with that Intel waffle?

Intel's mobile strategy is starting to look like a multidirectional seesaw, which means higher development costs for vendors and, ultimately, higher prices for users. The firm has made three attempts in the past four years, and while it now is focusing on bringing Pentium to the notebook market, sources say it will change its strategy again in the near future. Intel plans to integrate its chips with the chip sets that support its processors, preventing vendors from using Cyrix and AMD processors in the same board designs.

### Brighter Outlook from Banyan

Banyan Systems will next week unveil a network management package called OutLook 1.0, which runs on Hewlett-Packard's OpenView. OutLook will provide Vines users with real-time graphical views of the enterprise network, said Jeff Liotta, Banyan's director of network management. The package requires either Vines or ENS for NetWare. OutLook is one component of Banyan's overall network-based Distributed Enterprise Management Architecture platform, which was introduced last summer.

*A user wag, weary of the continued slippage of Windows 95 toward 1996, proposed that Microsoft could avoid potential packaging losses by rechristening the prodigal operating system "WinEver." The money saved could then be used to expand Microsoft's stable of vaporware engineers, he suggested. To pass along other brilliant ideas or just a news tip or two, you can reach Computerworld on our 24-hour voice-mail tip line at (508) 820-8555 or our toll-free number at (800) 343-6474. News editor Maryfran Johnson can be reached by phone at (508) 820-8179 or via the Internet at mjohnson@cw.com.*

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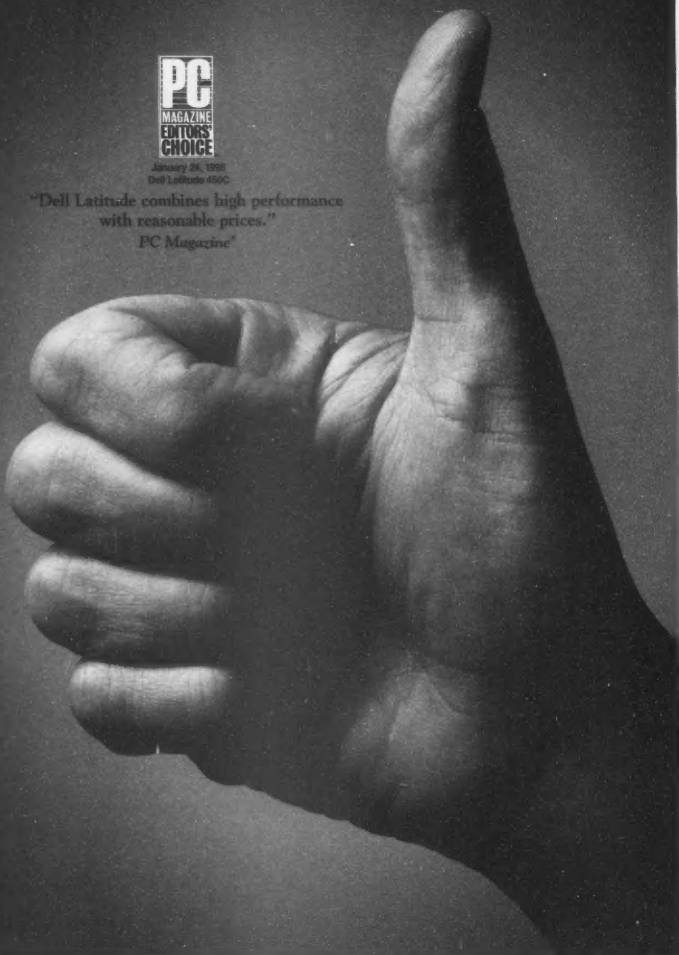
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